In the United States Court of Federal Claims

No. 15-1307
(Filed: 29 October 2020*)

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CELLCAST TECHNOLOGIES,          *
LLC AND ENVISIONIT, LLC,        *
                                *
        Plaintiffs,             *
                                *
v.                              *
                                *   Patent infringement; claim construction;
THE UNITED STATES,              *   Markman hearing; plain and ordinary
                                *   meaning; means-plus-function; 35 U.S.C
                                *   § 112(f).
        Defendant,              *
                                *
    and                         *
                                *
INTERNATIONAL BUSINESS          *
MACHINES CORP.,                 *
                                *
        Third-party defendant.  *
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Peter J. Chassman, with whom was *Michael Forbes*, both of Reed Smith LLP, of Houston, TX, for plaintiffs.

Nicholas J. Kim, Trial Attorney, Commercial Litigation Branch, Civil Division, Department of Justice, with whom were *Chad A. Readler*, Acting Assistant Attorney General, and *Gary L. Hausken*, Director, all of Washington, DC, for defendant.

Mark Joseph Abate, with whom were *Dietrich Brown*, *Calvin E. Wingfield Jr.*, *Shaun de Lacy*, and *Alexandra D. Valenti*, all of Goodwin Procter, LLP, of New York, NY, for third-party defendant.

CLAIM CONSTRUCTION OPINION AND ORDER

HOLTE, **Judge**.

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*This opinion was originally filed under seal on 26 October 2020 pursuant to the protective order in this case. The Court provided the parties 3 days to submit proposed redactions, if any, before the opinion was released for publication. Neither party proposed redactions. This opinion is now reissued for publication in its original form.

EnvisionIT, LLC ("EnvisionIT") and CellCast Technologies, LLC ("CellCast"), collectively the "plaintiffs," accuse the government of infringing five United States patents. The government noticed the licensed developers of the technology, International Business Machines Corporation ("IBM"), who join the government in defending the claims of patent infringement. The parties filed claim construction briefs seeking to construe the meaning of various disputed claim terms. A *Markman* hearing on claim construction was held. The parties resolved the construction of certain terms amongst themselves, leaving six terms requiring construction by the Court. Defendants argued invalidity of four claims for indefiniteness under 35 U.S.C. § 112(f). This Claim Construction Opinion and Order construes the disputed terms and determines the disputed terms under 35 U.S.C. § 112(f) are means-plus-function terms.

I.   Background

A.   Factual History

EnvisionIT is the assignee of five United States patents: 7,693,938 ("the '938 patent"); 8,103,719 ("the '719 patent" or "'719 Patent"); 8,438,221 ("the '221 patent"); 8,438,212 ("the '212 patent"); and 9,136,954 ("the '954 patent") (collectively, "the asserted patents"). Pls.' Compl. ¶ 18. CellCast holds an exclusive license to each of the asserted patents. *Id.* ¶ 19. Plaintiffs allege various government agencies infringe the asserted patents, including the Federal Emergency Management Agency ("FEMA"), the United States Department of Homeland Security ("DHS"), and the National Oceanic and Atmospheric Administration ("NOAA"). *Id.* ¶ 5.

The Integrated Public Alert Warning System ("IPAWS") is among the technology alleged to infringe the asserted patents. *Id.* ¶ 20. According to the government, IBM developed IPAWS under a government contract. *See* Gov.'s Unopp. Mot. To Notice Third Party at 2, ECF No. 10. The government noticed IBM pursuant to Rule 14(b) of the Rules of the United States Court of Federal Claims ("RCFC") and IBM entered the case. *See generally* IBM's Ans., ECF No. 21. The government and IBM are hereinafter collectively referred to as "defendants."

B.   Procedural History

On 11 July 2016, the parties submitted a Joint Preliminary Status Report setting forth certain rules and dates for the management of this patent case. *See* JPSR, ECF No. 28. A scheduling conference was held 19 July 2016, and this Court issued a scheduling order on 20 July 2016. *See* Order, ECF No. 33. The 20 July 2016 scheduling order set the date for submissions related to claim construction. *See id.* On 10 March 2017, the parties submitted a first Joint Claim Construction Statement, ECF No. 48 ("First Joint Stmt."). On 12 April 2017, plaintiffs filed their Corrected Claim Construction Brief, ECF No. 53 ("Pls.' Op. Cl. Constr. Br."), defendants filed their Opening Claim Construction Brief, ECF No. 54 ("Defs.' Op. Cl. Constr. Br."), and the parties further filed an Updated Joint Claim Construction Statement, ECF No. 55 ("Upd. Joint Stmt.").[1]

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[1] Plaintiffs submitted two opening claim construction briefs on 12 April 2017: a first brief (ECF No. 52) and a corrected brief (ECF No. 53). As noted in the Updated Joint Claim Construction Statement, the corrected brief

On 24 May 2017, plaintiffs filed their Responsive Claim Construction Brief, ECF No. 62 ("Pls.' Resp. Cl. Constr. Br.") and defendants filed their Responsive Claim Construction Brief, ECF No. 63 ("Defs.' Resp. Cl. Constr. Br."). A *Markman* hearing on claim construction was held 13 September 2017. *See* Scheduling Order, ECF No. 71. On 1 June 2018, plaintiffs filed a notice removing a single claim term from the Court's pending construction based upon the withdrawal of certain infringement contentions. *See* Pls.' Notice of Withdrawal of Claim Term for Construction, ECF No. 114 ("Pls.' Notice"). Throughout the course of claim construction proceedings, this Court further resolved a number of discovery-related disputes. *See, e.g.*, Order, ECF No. 58 (granting in part and denying in part plaintiffs' motion to compel); Order, ECF No. 105 (denying plaintiffs' motion to quash subpoenas); Order, ECF No. 131 (granting in part and denying in part plaintiffs' motion to compel); and Order, ECF No. 136 (granting defendants' motion to compel and denying plaintiffs' motion to quash).

This case was transferred to the undersigned Judge on 29 July 2019 pursuant to RCFC 40.1(c). *See* Order, ECF No. 149. On 28 August 2019, the Court held a status conference with the parties discussing the timing of the outstanding claim construction order and two pending, fully briefed discovery disputes. *See generally* Tr., ECF No. 153. On 30 October 2019, the Court resolved the two discovery-related disputes, denying plaintiffs' motion to strike and granting defendants' motion to reopen limited fact discovery. *See* Opinion and Order, ECF No. 155. Subsequent limited discovery pursuant to the Court's 30 October 2019 Order concluded on or about 6 March 2020. *See* Joint Proposal Regarding Additional Disc. Regarding Third-Party Multi-Technical Systems, Inc. and Regarding NOAA Prior Art in Defs.' Suppl. Invalidity Contentions, ECF No. 156. The Court now resolves the parties claim construction dispute, as the issue is fully briefed and a *Markman* hearing was previously held before case was transferred.

C.   Technology Overview

The asserted patents fall into two patent families: the '938 family, which includes the '938, '719, and '212 patents; and the '221 family, which includes the '221 and '954 patents. The parties agree the '938 patent serves as a representative example of the technology associated with the asserted patents. *See* Pls.' Op. Cl. Constr. Br. at 4; Defs.' Op. Cl. Constr. Br. 2–3. The asserted patents generally relate to technology for authorizing and sending a broadcast message to devices in a specified target area. *See* U.S. Pat. No. 7,693,938 to Weiser et. al, at Abstract. For example, delivery of a message to the public during emergency events or otherwise dangerous situations may be desired. *Id*. at col. 1:27–30. According to the '938 patent, the message is only delivered to devices located within a specified geographic target area. *Id*. at col. 4:34-40. An admission control prevents unauthorized users from broadcasting messages. *Id*. at col. 5:4–11.

Prior to development of the technology associated with the asserted patents, telecommunication signaling networks were often comprised of a series of cells organized into a "hierarchical network or cell structure system." *Id*. at col. 32:42–45. The asserted patents

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(ECF No. 53) updated defendants' proposed change to the term "broadcast." The Court thus treats plaintiffs second submission, ECF No. 53, as the operative document in deciding claim construction.

discuss two types of technology for delivering the messages via cellular telephone networks: Short Message Service ("SMS") and cell broadcast technology. *See id.*

SMS messaging requires the utilization of network components to "provide an SMS message call set up for each individual SMS message recipient. In order to send a single SMS message, all SMS message call processing procedures have to be repeated for each and every message, one by one, for all intended recipients." U.S. Prov. Pat. Appl. No. 60/544,739, to Weiser et. al ¶ 5 ("'739 Appl."). A telecommunication signaling network is used to deliver the SMS message by querying a database known as the Home Location Register ("HLR") to determine "whether the intended SMS message recipient is currently attached to the network and if so, to which network switch the user is attached." *Id.* ¶ 6. When the recipient is attached to a switch within the telecommunication signaling network, the particular network switch is signaled "to set up the SMS message call." *Id.* ¶ 7. Recipients located within a particular cell area are paged. *Id.* As a result, "[e]ach queried cell requires paging and calling capacity resources for each mobile unit which is attempted to be paged." *Id.* SMS messaging therefore requires each message to be generated and transmitted "to a particular telecommunication user or unit." *Id.* ¶ 10. When utilizing this technology for emergency messaging, an SMS message must be "created and sent to each mobile unit even though the particular user phone is not located in the particular area in which the emergency is located." '739 Appl. ¶ 11. In other words, "SMS service is not capable of position-specific messaging," whereas the patented technology is a system "providing a broadcast message to a broadcast target area." *Id.* ¶ 11 and ¶ 22.

Alternatively, cell broadcast technology utilizes the broadcast channels of telecommunication networks. '938 Patent at col. 32:27–32. The broadcast messages are sent "on a per-cell basis over a location broadcast channel." *Id.* at col. 31:36–44. A signal is sent to the broadcast center and then transmitted to the station controller. *See id.* The message contains crucial information including identification of "the cells in which the broadcast is to be made, along with some other data such as how often and when the message is to be broadcast." *Id.* As cell broadcast technology does not require two-way communication with any target devices, it therefore "does not require functionality or network resources from the mobile services provider or from any portion of the mobile service provider's mobility management resources." *Id.* at col. 4:15–20; *see also* Pls.' Op. Cl. Constr. Br. at 7. A mobile device "configured to receive location-based broadcast messages, while in the idle mode and located in the predefined cell, receives the broadcast message and displays the message on its screen." '938 Patent at col. 4:10–14. This results in cell broadcast technology capable of "the simultaneous sending of public service messages to millions of subscribers with less impact on the supporting networks than a single SMS-message." *Id.* at col. 4:21–25.

The asserted patents discuss the use of cell broadcast technology for sending emergency and public service messages to the general public. *Id.* at col. 4:26–33. "A public service message location broadcasting system (PLBS) receives emergency or public service messaging and identification of the target broadcast area from public service or government entities." *Id.*

Figure 1 of the '938 patent, reproduced below, provides a representative illustration of the PLBS:[2]
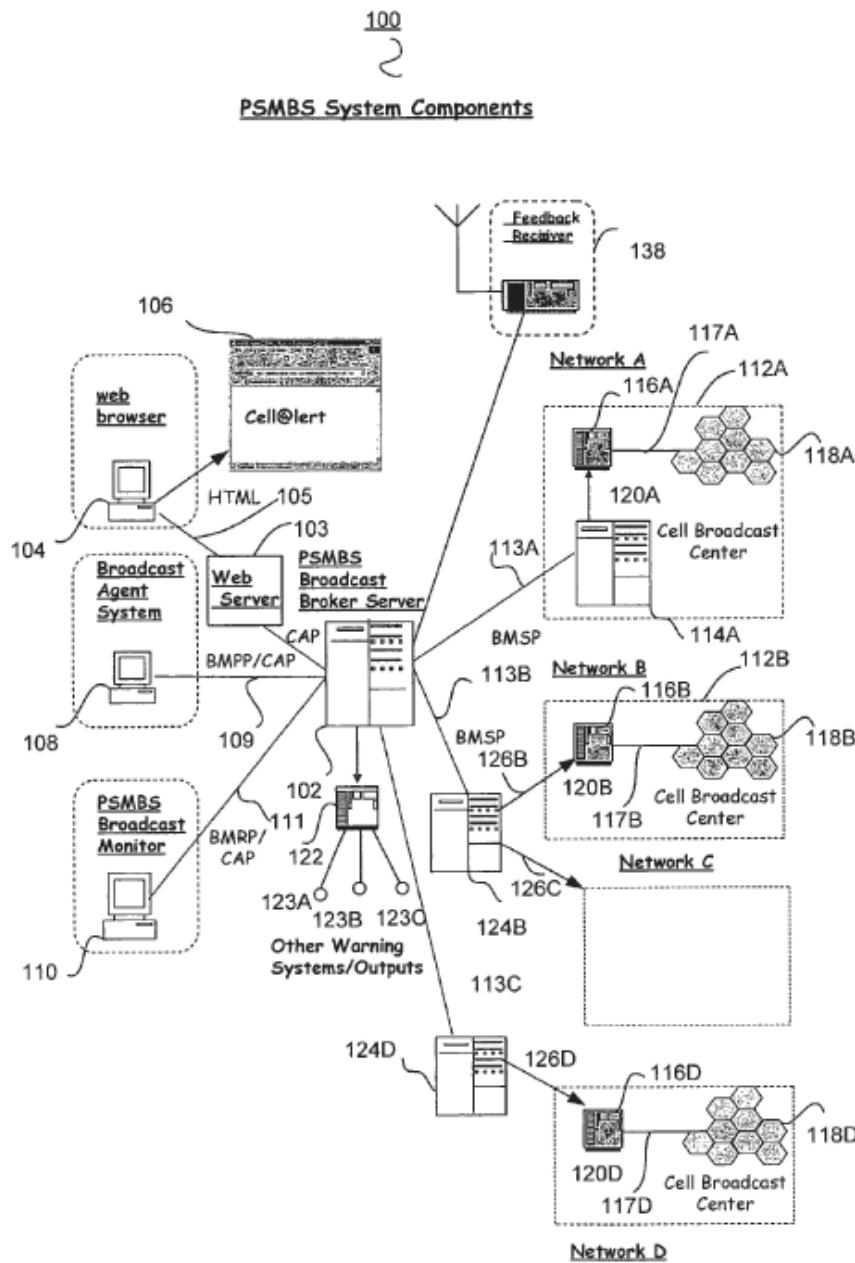
FIG. 1

'938 Patent at Fig. 1. Using a web interface to access and control the PLBS, an authorized "agent" sends a message to target devices within a target area using cell broadcast technology. *See id.* at col. 5:4–65.

D.   Overview of Claims

Plaintiffs assert infringement of seven independent claims: claims 1 and 42 of the '938 patent; claims 14 and 23 of the '719 patent; claim 19 of the '221 patent; claim 17 of the '954 patent; and claim 13 of the '212 patent. Of these seven claims, claim 1 of the '938 patent is a system claim; the remaining six independent claims are all method claims. While plaintiffs also assert infringement of various dependent claims, all disputed claim terms appear in the independent claims. Claims 1 and 42 of the '938 patent, reproduced below, provide a representative example of the various disputed claim terms used in each of a system and method claim.

Claim 1 of the '938 patent is provided below, with disputed claim terms indicated in italics:[3]

> 1. A message broadcasting system providing a *broadcast message* to a broadcast target area, the system comprising:
>
>> a broadcast request interface configured for receiving a broadcast message record having a *broadcast message*, a defined broadcast target area, and a *broadcast message originator identifier*;
>>
>> a broadcast admission control module configured for receiving the broadcast message record, validating the broadcast message record as a function one or more of the *broadcast message originator identifier*, the broadcast target area, and a broadcast message transmission network parameter associated with a broadcast transmission network adapted for broadcasting the message to at least a portion of the broadcast target area, said broadcast admission control module configured for *generating a validated broadcast message record* as a function of the validating; and
>>
>> a broadcast message distributor module configured for receiving the validated broadcast message record and transmitting the *broadcast message* and the broadcast target area, or a part thereof, to an output interface configured for distributing the *broadcast message* to at least a portion of the broadcast target area.

Claim 42 of the '938 patent:

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[3] As the term "broadcast" does not appear in isolation throughout the claims, but rather only in conjunction with other terms, the Court does not isolate the term "broadcast" as used in the claims for illustrative purposes.

42. A method of admission control for authorizing a submission of a *broadcast message* to a broadcast target area, comprising:

> receiving a broadcast message record including the *broadcast message* and the broadcast target area for the *broadcast message*;
>
> validating the authority of a *broadcast message originator* originating the broadcast message record as a function of a *broadcast message originator parameter*;
>
> identifying a broadcast transmission network providing broadcast message transmission to broadcast message receiving devices located within the broadcast target area;
>
> validating the broadcast transmission network against a broadcast transmission network parameter; and
>
> forwarding the broadcast message record to an output interface associated with the broadcast transmission network for transmission to the broadcast message receiving devices within the broadcast target area.

II.   Construction of Disputed Claim Terms

A.   Applicable Law

"[T]he interpretation and construction of patents claims, which define the scope of the patentee's rights under the patent, is a matter of law exclusively for the court." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970–71 (Fed. Cir. 1995). "To construe a claim term, the trial court must determine the meaning of any disputed words from the perspective of one of ordinary skill in the pertinent art at the time of filing." *Chamberlain Grp. v. Lear Corp.*, 516 F.3d 1331, 1335 (Fed. Cir. 2008). "[T]he words of a claim 'are generally given their ordinary and customary meaning,' . . . [and] the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "There are only two exceptions to this general rule: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (citing *Vitronics*, 90 F.3d at 1580).

The analysis of any disputed claim terms begins with the intrinsic evidence of record, as "intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." *Vitronics*, 90 F.3d at 1582. Additional claims, whether asserted or not, "can also be valuable sources of enlightenment as to the meaning of a claim term." *Phillips*, 415 F.3d at 1314. This includes consistent use throughout the patent, differences amongst particular terms, and various limitations added throughout the dependent claims. *Id.* The claims do not

stand on their own; "they are part of 'a fully integrated written instrument,' consisting principally of a specification that concludes with the claims." *Id.* (quoting *Markman*, 52 F.3d at 978). The claims are therefore "read in view of the specification." *Markman*, 52 F.3d at 979. It is important that limitations from preferred embodiments are not read "into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history may serve as an additional source of intrinsic evidence. *Markman*, 52 F.3d at 980. The prosecution history "consists of the complete record of the proceedings before the [United States Patent and Trademark Office ("USPTO")] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. The prosecution history "represents an ongoing negotiation between the USPTO and the applicant, rather than the final product of that negotiation." *Id.* This results in the prosecution history often "lack[ing] the clarity of the specification," making it "less useful for claim construction purposes." *Id.* After considering all intrinsic evidence of record, the court has discretion to consider sources of extrinsic evidence, such as dictionaries, treatises, and expert and inventor testimony, if they "deem[] it helpful in determining 'the true meaning of language used in the patent claims.'" *Id.* at 1317–18 (quoting *Markman*, 52 F.3d at 980). While sometimes helpful, extrinsic evidence is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Id.* at 1317 (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed Cir. 2004) (internal quotation marks and citations omitted)).

B.   Terms Resolved by the Parties

In the parties' first Joint Claim Construction Statement, eight claim terms were disputed. *See* First Joint Stmt. Of these eight claim terms, the parties were able to reach an agreement amongst themselves for the construction of one grouping of claim terms. The patents use three phrases effectively interchangeably: "broadcast message record," "broadcast request," and "broadcast message request." Plaintiffs and defendants agree these three phrases "should all be given the same meaning." *See* Tr. at 95:7–11, ECF No. 75; *see also* First Joint Stmt. During the *Markman* hearing, the parties agreed to the following construction for each of "broadcast message record," "broadcast request," and "broadcast message request:" a group of related data items treated as one unit that includes a broadcast message and associated information. Tr. at 106:20–107:19, ECF No. 75.

The parties further eliminated one additional claim term from the Court's consideration. On 1 June 2018, plaintiffs withdrew their infringement contentions for claim 20 of the '212 patent, thereby eliminating the phrase "Common Alerting Protocol," or CAP, from any of the asserted claims. *See* Pls.' Notice. As the phrase is no longer present in any of the asserted claims, the Court need not construe this claim term. *See O2 Micro Int'l*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) ("The purpose of claim construction is to 'determin[e] the meaning and scope of the patent claims asserted to be infringed.'") (quoting *Markman*, 52 F.3d at 976).

C.   Disputed Claim Term #1:   "Broadcast"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction

transmission to all recipients within a target area without targeting a specific recipient	wide dissemination over a communications network including, but not limited to, cellular carriers, digital private radio systems, private radio systems, internet, wireline telecommunications, satellite, and CATV systems

The term "broadcast" appears numerous times throughout the asserted claims. For example, in claim 1 of the '938 patent alone, the term "broadcast" appears 23 times. *See* '938 Patent at col. 39:21–44. The Court notes plaintiffs' preference for the exclusion of construing the term "broadcast" in isolation, arguing instead "that construing 'broadcast' in the context of specific, key claim terms is more practical than an overarching construction of 'broadcast' for all contexts with all terms." Pls.' Op. Cl. Constr. Br. at 10. The Court agrees with plaintiffs that, because the term "broadcast" does not appear by itself in any of the claims, construction of the term in isolation does not aid in interpreting the claims to the same extent as interpreting the term as it is used in the context of other qualifying terms throughout the claims. Defendants, however, present a proposed construction of the term "broadcast" in isolation that is unamenable to plaintiffs. *Id.* at 13 ("Defendants proposed construction is erroneous . . ."). "When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l*, 521 F.3d at 1362. The Court must therefore construe the term "broadcast" in isolation. To the extent the term "broadcast" requires construction to resolve any dispute between the parties, the Court's construction of broadcast carries through to all subsequent claim terms incorporating "broadcast" as part of a larger term to ensure consistency throughout all claim terms.

1.   Parties Arguments

The parties dispute the breadth of dissemination covered by the term "broadcast." Plaintiffs argue dissemination is tied to the intended target area of dispersion, independent of individual recipient identities. Pls.' Op. Cl. Constr. Br. at 10. This is defined in the asserted patents as a geographic target area: "a key aspect of the claimed inventions is that they solve the need for geographically-targeted emergency alert messages." *Id.* Plaintiffs also point to specific passages in the patent specification disparaging the use of SMS messaging. *Id.* at 12. For example, SMS-based systems face certain technical limitations resulting in delayed delivery of messages. '938 Patent at col. 1:42–46 ("SMS systems and technology have significant technical limitations and experience with such systems has been disappointing due to significant delays in the delivery of SMS messages and negative impacts to the networks due to congestion."). Additionally, SMS-based systems generally do not send messages to a geographically defined target area, but instead to individually selected devices. *Id.* at col. 1:65–2:2 ("Generally, existing systems are not location-based and as such do not send messages to intended recipients located within a defined geographic location and therefore do not provide an attractive solution to location-based customer notification and other location-based broadcast services.").

Defendants argue no target area should be attached to the meaning of "broadcast," and instead the breadth of dissemination should be tied to the various networks used. *See* Defs.' Op. Cl. Constr. Br. at 12. According to defendants, the term broadcast should be construed "with

how the specifications of the asserted patents states broadcast messages are transmitted according to the disclosed inventions." *Id.* To support this position, defendants point to a single line in the specification providing examples of how the message is transmitted: "[i]n most cases, the message is transmitted to every known operator offering coverage of the area and may include mobile carriers, digital private radio systems operators, private radio system operators, internet service providers, wireline telecommunication service providers, satellite service providers, CATV operators, etc." *Id.* (quoting '938 Patent at col. 14:49–54). Defendants further argue plaintiffs' proposed construction seeks to limit the claims to the "purported purpose of the claimed systems and methods," which is using "broadcast technology to achieve efficient geographically targeted emergency alert message delivery." Defs.' Resp. Cl. Constr. Br. at 6. .

Defendants acknowledge plaintiffs' criticism of SMS-based systems in the patents, arguing these statements amount to nothing more than "the kind of general statements about the background of the invention that the Federal Circuit repeatedly has found to be insufficient to narrow the common meaning of a claim term." Defs. Op. Cl. Constr. Br. at 13. To support this proposition, defendants cite to *Ventana Med. Sys., Inc. v. Biogenx Labs, Inc.*, 473 F.3d 1173 (Fed. Cir. 2006), which "decline[d] to interpret [] general statements by the inventors to effect a complete surrender" of claim scope. Defendants follow this argument by contending plaintiffs' proposed construction "would render superfluous many other recited limitations of the asserted claims." Defs.' Resp. Cl. Constr. Br. at 6.

The parties also offer extrinsic evidence in the form of competing dictionary definitions in a final attempt to construe "broadcast." Plaintiffs point to the 2002 Microsoft Computer Dictionary, providing the following definition: "a broadcast message is one distributed to all stations." Pls.' Op. Cl. Constr. Br. at 13. Defendants point to Newton's Telecom Dictionary, providing the following definition for "broadcast:" "[t]o send information to two or more receiving devices simultaneously." Defs.' Op. Cl. Constr. Br. at 12.

2.   Plain and Ordinary Meaning

The Court begins by giving claim terms "their ordinary and customary meaning" in view of the intrinsic record. *Phillips*, 415 F.3d at 1312–13. The specification of the '938 patent consistently refers to the geographic boundaries of a "broadcast." For example, the message location broadcasting system provides the "development, transmission, delivery and display of a message that is an official government-to-citizen information broadcast *to all compatible telecommunication receiving devices in, or entering, a predefined at-risk geographic location or area*." '938 Patent at col. 4:34–40 (emphasis added). "The . . . system uses cell-broadcast SMS (C-BSMS) technology to provide a message or alert *to a single cell geographic location . . . .*" *Id.* at col. 4:58–60 (emphasis added). *See also* '938 Patent at col. 4:8–14 (emphasis added) ("A mobile unit . . . *located in the predefined cell*, receives the broadcast message and displays the message on its screen."). As opposed to SMS-based systems requiring the identity of target devices, cell-broadcast technology does not require any "pre-event recipient action." *Id.* at col. 4:50–57. The messages are instead delivered to a geographically defined target area. The specification of the '938 patent therefore supports plaintiffs' proposed construction of "broadcast" incorporating a geographic component.

In place of plaintiffs proposed geographic component, defendants advocate transmission-based limitations recited in the specification be incorporated into the construction of "broadcast." *See* Defs.' Op. Cl. Constr. Br. at 12. While the specification serves as a useful tool in understanding specific claim limitations, the Court is "cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1328 (Fed. Cir. 2002)). Defendants' inclusion of specific examples from the specification risks improperly narrowing the scope of the term "broadcast."

After removing the specific examples defendants attempt to incorporate from the specification, defendants' proposed construction is left with only "wide dissemination over a communications network." Defendants do not provide any basis in the patents for defining the phrase "wide dissemination." *Phillips*, 415 F.3d at 1313 ("Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification."). As plaintiffs point out, "[i]f a target broadcast area were very large, it is not clear whether 'wide dissemination' would reach the entire target broadcast area, a portion of it, or none." Pls. Op. Cl. Constr. Br. at 15. Accordingly, the Court finds no basis to construe the term "broadcast" according to a vague definition not supported by the specification.

The claims further independently refer to a "broadcast target area." *See* '938 Patent at col. 39:22. According to defendants, it is therefore implied such a "target area" is not a part of the term broadcast by itself. *See* Defs.' Resp. Cl. Constr. Br. at 6. Defendants rely on *Phillips* for supporting this proposition. *Id.* The term in question in *Phillips*, however, dealt with an adjective describing the proposed material of construction, finding "the claim in this case refers to 'steel baffles,' which strongly implies that the term 'baffles' does not inherently mean objects made of steel." *Phillips*, 415 F.3d at 1314. Here, the role of the terms is reversed. The modifying term "broadcast" is subject to construction. In *Phillips*, it was the term being modified, "baffles," that was subject to construction: whether or not "baffles" by itself incorporated the limitation of being manufactured of steal. *See id.* Thus, in *Phillips* the Federal Circuit refused to read the material of construction as a limitation into the term "baffle." Here, the specification itself discusses the breadth of dissemination in terms of a geographic target area, and the usage of the term "broadcast" within the claims themselves reinforces this use. Using the term "broadcast" to modify the breadth of dissemination as a more narrowly defined target area of a specific function does not render the phrase "target area" superfluous. For example, claim 1 of the '938 patent states a "message broadcasting system providing a broadcast message to a broadcast target area." '938 Patent at col. 39:21–22. Claim 42 of the '938 patent similarly states a "method of admission control for authorizing a submission of a broadcast message to a broadcast target area." *Id.* at col. 43:44–45.

Next, the Court evaluates whether plaintiffs attempt to limit the claims to "the purported purpose of the claimed systems and methods." Defs.' Resp. Cl. Constr. Br. at 6. "[I]t is generally not appropriate 'to limit claim language to exclude particular devices because they do not serve a perceived purpose of the invention.'" *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) (quoting *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1370 (Fed. Cir. 2003)). Yet it is not merely the intended purpose of the invention which provides for the

breadth of dissemination of the message. The specification provides the necessary foundation for the breadth of dissemination tied to the term "broadcast," which is further reinforced by the usage of the term "broadcast" throughout the claims and in the context of further claim terms. To the extent any particular devices or technologies are excluded from the construction of "broadcast" by tying the breadth of dissemination to a target area, such exclusion is a result of the inherent restrictions of any such devices or technology; not from any particular perceived purpose of the invention supposedly imported into the definition of the term.

According to the intrinsic record, the plain and ordinary meaning of the term "broadcast" requires tying the breadth of dissemination to a geographic limitation.

3.   Disparagement of Other Technologies in the Specification

The Court next turns to alleged criticism of SMS-based systems in the patents in order to determine whether plaintiffs proposed "without targeting a specific recipient" limitation should be included in the construction of the term "broadcast." "[T]he specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents." *In re Abbot Diabetes Care, Inc.*, 696 F.3d 1142, 1149–50 (Fed. Cir. 2012) (quoting *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004)). Relevant considerations in this context include "disparaging remarks with respect to [the prior art]." *Id.* Defendants rely on *Ventana Med. Sys., Inc. v. Biogenx Labs, Inc.*, 473 F.3d 1173 (Fed. Cir. 2006) for the premise that general statements are "insufficient to narrow the common meaning of a claim term." Defs.' Op. Cl. Constr. Br. at 13. *Ventana* discusses whether claim scope should be narrowed based upon "general statements by the inventors." *Ventana,* 473 F.3d at 1180–81 ("Moreover, this is not a case in which the inventor's distinguishing the invention over the prior art in the specification results in a disavowal of coverage by the inventor of features in the prior art.").

Here, the patents first point to general disadvantages of SMS-based prior art systems in the "BACKGROUND." *See, e.g.*, '938 Patent at col. 1:36–2:2 ("SMS systems and technology have significant technical limitations and experience with such systems has been disappointing due to significant delays in the delivery of SMS messages and negative impacts to the networks due to congestion."). The patents then discuss the functionality of cell-broadcast technology in view of the specific differences when contrasted with SMS-based systems in the "DETAILED DESCRIPTION." For example, the '938 patent states "[l]ocation-based message broadcasting is transmitted from the predefined cell in a downlink only mode and therefore, unlike current SMS services, does not require functionality or network resources from the mobile services provider." *Id.* at col 4:15–18. This configuration "provides for the simultaneous sending of public service messages to millions of subscribers with less impact on the supporting networks than a single SMS-message." *Id.* at col 4:22–24. The '938 patent further contrasts cell broadcast technology from SMS-based prior art systems by noting "[u]nlike other emergency messaging services that require the recipient's identity, a predetermined fixed delivery location, and usually the payment of a service fee, the public service message location broadcasting system uses broadcast messaging technology to reach an unlimited number of people in real time." *Id.* at col. 4:50–55. Lastly, the '938 patent discloses "minimal impact to participating telecommunication networks"

by utilizing cell broadcast technology "to provide a message or alert to a single cell geographic location." *Id.* at col. 4:58–62.

The '938 patent highlights specific technical differences between cell-broadcast technology and SMS-based systems common in the prior art. The '938 patent contrasts the two technologies based on their ability to distribute messages with or without an intended recipient, pointing to specific technological drawbacks in conventional SMS-based systems. The cell broadcast technology in the asserted patents is thus proposed as an alternative to traditional SMS-based systems by distributing messages to any recipient within a target geographical area. The disparaging remarks regarding SMS-based systems in the asserted patents are therefore more than "mere general statements" as alleged by defendants. Defs.' Op. Cl. Constr. Br. at 13. These specific technical differences specifically show the inapplicability of using intended recipient-reliant technologies, such as SMS-based systems, for practicing the asserted patents. Accordingly, the term "broadcast" does not cover technology requiring an intended recipient for dissemination.

4.   Extrinsic Evidence

Finally, the Court has discretion to evaluate any extrinsic evidence presented by the parties. *Phillips*, 415 F.3d at 1317. The parties present extrinsic evidence in the form of competing dictionary definitions. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." *Vitronics*, 90 F.3d at 1583. Here, the Court finds the intrinsic evidence of record sufficient to properly construe the term "broadcast." Accordingly, the Court need not rely on the party's extrinsic evidence in construing the term "broadcast."

5.   Construction of "Broadcast"

The plain and ordinary meaning of the term "broadcast," according to the intrinsic record, is defined by a geographic limitation. In support of this plain and ordinary meaning, the patents differentiate between SMS-based systems in the prior art and the cell-broadcast technology used in the patents. When read in view of the various specifications, the term "broadcast" is not directed to SMS-based delivery systems. Rather, "broadcast" is used in the context of delivering geographically-targeted messages to all devices within the defined target area irrespective of the identity of the device. The Court need not consult any extrinsic evidence in construing the term "broadcast." The Court therefore adopts plaintiffs' proposed construction, which comports with the plain and ordinary meaning of the claim term. The term "broadcast" means: "transmission to all recipients within a target area without targeting a specific recipient."

Plaintiffs' Proposed Construction (as adopted by the Court)	Defendants' Proposed Construction
transmission to all recipients within a target area without targeting a specific recipient	wide dissemination over a communications network including, but not limited to, cellular carriers, digital private radio systems, private radio systems, internet, wireline

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	telecommunications, satellite, and CATV systems

D.   Disputed Claim Term #2: "Broadcast Message"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
message that is intended for distribution to all recipients within a target area and is not targeted to a specific recipient	a message that is intended for distribution

Plaintiffs assert the proper construction of "broadcast message" retains the limitations set forth in their construction of "broadcast" individually. Defendants seek to remove any additional limitations from the term.

1.   Parties Arguments

Plaintiffs argue their proposed construction "captures the geographic aspect that makes a 'message' a '*broadcast* message.'" Pls.' Op. Cl. Constr. Br. at 16 (emphasis in original). The exclusion of any limitations attached to the term "broadcast" individually "effectively reads out the critical word at the center of the parties' dispute—'broadcast.'" *Id.* at 16. Defendants argue the term "broadcast message" refers "only to the content of the message and does not include Plaintiffs' proposed 'to all recipients within a target area and is not targeted to a specific recipient' limitation." Defs.' Op. Cl. Constr. Br. at 14. Defendants assert each claim reciting "broadcast message" also recites a broadcast target area limitation, and the Court should "decline to read into a term a limitation that already is expressly recited in the language of at least some claims." *Id.*

Similarly, defendants attempt to bifurcate the content of the "broadcast message" from the intended target area. *Id.* at 15. Defendants cite to various passages from the specification discussing the content of the "broadcast message," including the length, number of characters, and method of displaying the "broadcast message," in addition to the pairing of the "broadcast message" with "local delivery instructions." *Id.* at 15–16. Defendants further cite to various statements made during prosecution of the '221 patent discussing the systems' receipt of both a "broadcast message" and a "geographically defined target area." *Id.* at 16. For example, the system "receives the broadcast request with the particular message to be broadcast and the geographically defined target area for that particular message to be broadcast into." Defs.' Op. Cl. Constr. Br., Ex.14 at 14 (U.S. Patent App. No. 13/311,448 to Weiser et. al, Office Action Resp. of Oct. 24, 2012); *see also* Defs.' Op. Cl. Constr. Br. at 16 ("includes the broadcast message to be sent and the target area from the broadcasting agent"); Defs.' Op. Cl. Constr. Br., Ex. 15 at 12 (U.S. Patent App. No. 13/887,940 to Weiser et. al, Office Action Resp. of Feb. 2, 2015) ("each broadcast request . . . has a unique broadcast message and broadcast target area").

Defendants further allege plaintiffs' construction is erroneous because language in additional claims, specifically claim 1 of the '938 patent and claim 19 of the '221 patent, contain claim terms referencing either the distribution or transmission of the "broadcast message" "to at least a portion of the broadcast target area." Defs.' Op. Cl. Constr. Br. at 15. Lastly, defendants

make a passing reference to extrinsic evidence, referencing Newton's Telecom Dictionary for the following definition of "broadcast message:" "a message from one user sent to all users." *Id.* at 14.

2.   Plain and Ordinary meaning

The Court begins by analyzing whether intrinsic evidence supports construing "broadcast message" to include a geographic component. "[C]laim construction that gives meaning to all the terms of the claim is preferred over one that does not do so." *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (citing *Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1307 (Fed. Cir. 2000)). The Court has already construed the term "broadcast" to include a geographic component. Similar to arguments presented for "broadcast" in isolation, defendants' assert any geographic limitation present in the claims is presented by subsequent claim terms divorced from "broadcast message." *See* Defs.' Op. Cl. Constr. Br. at 14.

Defendants rely on *Woods v. DeAngelo Marine Exhaust, Inc.*, 692 F.3d 1272 (Fed. Cir. 2012) for the proposition that "the Court should decline to read into a term a limitation that already is expressly recited in the language of at least some claims." Defs. Op. Cl. Constr. Br. at 14. In *Woods*, the technology involved "[w]ater jacketed marine exhaust systems" for cooling exhaust upon exiting a marine vessel engine. *Woods,* 692 F.3d at 1275. The patents were directed to "an apparatus that more efficiently cools exhaust by tapering the tail end of the outer liner so it directs the cooling water into the exhaust stream, and prevents water migration and corrosion by tapering the tail end of the inner liner to reduce the turbulence at the end of the pipe." *Id.* at 1275. The claims included a limitation directed to the disposition of the spacer relative to the outer shell and inner liner of the jacketed exhaust.[4] When construing the claims, the court declined to read a specific angle into the claim term "angularly disposed" regarding the orientation of the spacer. *Id.* at 1285. "The phrase 'angularly disposed' does not prescribe any specific angle. The patentee never defined the term nor disavowed a broader meaning. Furthermore, it is not necessary to read [defendant's] proposed limitation into the term because every claim that uses this term already limits the ring to being directed toward the outer wall." *Id.*

As plaintiffs indicate, the limitation from *Woods* is inapposite to plaintiffs' proposed construction. Pls.' Resp. Cl. Constr. Br. at 9. In *Woods*, not only was a specific angle not

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[4] For purposes of a representative example of the technology from *Woods*, claim 9 of U.S. patent no. 5,740,670 is reproduced below:

A water jacketed exhaust pipe for marine engines comprising:
    an elongated inner liner, said liner having a tail end, said tail end defining an inwardly tapered section;
    an elongated outer shell having a tail end, said shell surrounding said liner about an elongate axis of said pipe;
    said elongated inner liner being extended axially beyond said tail end of said elongated outer shell;
    a spacer angularly disposed between said outer shell and said inner liner and separating said shell from said liner and defining a volume therebetween, said spacer further defining at least one passageway thereby fluidly communicating said volume with a second volume outside said exhaust pipe; and,
    wherein fluid from said first volume is directed toward said outer shell by said at least one passageway.
U.S. Patent No. 5,740,670 to Woods at col. 6:54–7:4.

prescribed in the claims, but each claim in which the claim term "angularly disposed" appeared was accompanied by an express limitation regarding the direction of the water spray. *Woods,* 692 F.3d at 1285. Reading in a separate limitation for a particular angle not specifically recited in the claims, in addition to importing an improper limitation based upon specific embodiments from the specification in contravention of *Phillips*, 415 F.3d at 1323, would further render the direction limitation superfluous. *Woods,* 692 F.3d at 1285. Here, plaintiffs propose the term "broadcast message" should retain the geographic distribution characteristics which differentiate the claim term from a standard "message." Pls.' Resp. Cl. Constr. Br. at 9. Such a reading of the claims does not render the subsequent term "broadcast target area" superfluous, but instead reinforces the nature of the message being distributed. The "broadcast message" is a message for distribution to a geographic target area, and the "broadcast target area" provides the specific geographic area. *Id.*

It is true the claim term "broadcast message" is discussed in conjunction with the geographic target area for distribution on numerous occasions. *See* Defs.' Op. Cl. Constr. Br. at 15–16. Yet this delineation is not at odds with plaintiffs' proposed construction requiring the term "broadcast message" to retain a geographic component. Similar to the above arguments, because a "broadcast message" is intended for distribution to a geographic target area, it does not necessarily follow that the message itself includes what the specific geographic target area is. The inclusion of the geographic characteristic to the term "broadcast message" is better understood as modifying the nature of the message. The system does not deal in any generic message, but rather only those messages capable of transmission to all recipients within a target area, rather than to a specific recipient: a "*broadcast* message." The coupling of the broadcast message with the particular intended geographic target area, whether by "local delivery instructions" or otherwise, does not strip the claim term "broadcast message" of its geographic component, nor does it render the respective geographic components superfluous. According to the intrinsic evidence, the plain and ordinary meaning of a "broadcast message" retains a geographic component.

3.   Claim Differentiation

"The doctrine of claim differentiation 'create[s] a presumption that each claim in a patent has a different scope.'" *Versa Corp. v. Ag-Bag Int'l, Ltd.*, 392 F.3d 1325, 1330 (Fed. Cir. 2004) (quoting *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998)). "Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." *Phillips*, 415 F.3d at 1314 (citing *Vitronics*, 90 F.3d at 1582). "Differences among claims can also be a useful guide in understanding the meaning of particular claim terms." *Id.* (citing *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991)).

Defendants attempt to invoke the theory of claim differentiation to exclude a geographic component from the construction of "broadcast message." Defendants look to the use of "broadcast message" throughout the patents, such as in claim 1 of the '938 patent and claim 19 of the '221 patent, where a "broadcast message" is transmitted "to at least a portion of the broadcast target area." Defs.' Op. Cl. Constr. Br. at 15. Defendants argue the adoption of plaintiffs

proposed construction of "broadcast message" is "inconsistent with the plain language" of these claims. *Id.*

It is true "claim terms are normally used consistently throughout the patent." *Phillips*, 415 F.3d at 1314. Defendants, however, fail to read the "at least a portion of the broadcast target area" language as "part of a fully integrated written instrument." *Id.* at 1315 (quoting *Markman*, 52 F.3d at 978). The claim language referencing "at least a portion of the broadcast target area" is specifically tied to an output interface: "a broadcast message distributor module configured for receiving the validated broadcast message record and transmitting the broadcast message and the broadcast target area, or a part thereof, *to an output interface configured for distributing the broadcast message to at least a portion of the broadcast target area*." '938 Patent at col. 39:38–43 (emphasis added). As plaintiffs point out, "the system may utilize *one or more output interfaces* to get the message to the target geographic area." Pls.' Resp. Cl. Constr. Br. at 10 (emphasis in original); *see also* '938 Patent at col. 21:48–51 ("a first output interface associated with a first broadcast transmission network and transmitting the second validated broadcast message record to a second output interface associated with a second broadcast transmission network"). It is a well-settled principle of claim construction that "an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claim containing the transitional phrase 'comprising.'" *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000). The claims do not foreclose a system having more than one output interface for distributing the "broadcast message" to the entire target area, with each output interface serving only a portion thereof. The doctrine of claim differentiation therefore does not alter the plain and ordinary meaning of "broadcast message."

4.   Extrinsic Evidence

Similar to the Court's analysis regarding the presentation of intrinsic evidence for the claim term "broadcast," the Court finds the intrinsic evidence of record sufficient to construe the term "broadcast message." Accordingly, the Court need not consider the weight of any extrinsic evidence in arriving at a final claim construction. *Vitronics*, 90 F.3d at 1583.

5.   Construction of "Broadcast Message"

Adopting a construction of the term "broadcast message" which omits any geographic component would effectively read the word "broadcast" out of the claim term entirely. Such a construction is improper. *Merck & Co.,* 395 F.3d at 1372 ("claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). While the "broadcast message" does not necessarily provide the system with the intended geographic area of distribution, the message is still defined by its intended use for distribution to such a geographic area. When read in view of the specification, as well as in view of the other claims and claim terms of the asserted patents, the term "broadcast message" includes a geographic component. The Court therefore adopts plaintiffs' proposed construction: the term "broadcast message" means a "message that is intended for distribution to all recipients within a target area and is not targeted to a specific recipient."

Plaintiffs' Proposed Construction (as adopted by the Court)	Defendants' Proposed Construction
message that is intended for distribution to all recipients within a target area and is not targeted to a specific recipient	a message that is intended for distribution

E.   Disputed Claim Term #3: "Broadcast Message Originator/Broadcast Agent"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
a person or entity that requests the transmission of a broadcast message	a person who submitted a proposed broadcast message

The parties agree both "broadcast message originator" and "broadcast agent" should be given the same meaning. *See* Upd. Joint Stmt. at 4. For purposes of discussing the various terms, the Court will hereinafter refer to the term "broadcast agent" as encompassing both "broadcast agent" and "broadcast message originator."

1.   Parties Arguments

Plaintiffs assert "broadcast agent" should not be restricted to only a person, but further encompass entities or departments within an organization. Pls.' Op. Cl. Constr. Br. at 18–19. Plaintiffs argue limiting a "broadcast agent" to only a person or individual unduly narrows the claims by improperly attempting to "read additional limitations into the claim." *Id.* at 18. Defendants contend the terms are limited to only a person or individual. Defs.' Op. Cl. Constr. Br. at 19. Defendants point to particular instances within the specification where the "broadcast agent" is specifically referred to as an individual person, such as by a pronoun (he/his), a descriptive term (man), or a title (manager or commander). *Id.* at 19–20; *see, e.g.*, '938 Patent at col. 7:64–8:4 ("Service may be automatically denied to a Broadcast Agent . . . who has exceeded his quota"); *id.* at col. 12:33-35 ("The web portal [] provides a man-machine interface to a Broadcast Agent"); *id.* at col. 7:23-25, 7:25–29, 33:64–67 (providing examples of a "broadcast agent" including "a Coast Guard commander," "a River Authority manager," and a "disaster manager"). The specification also refers to a "broadcast agent" separate from the organization to which the "broadcast agent" belongs. *See* '938 Patent at col. 7:14–17 ("an Administrative Operator checks and/or verifies the authenticity of the Broadcast Agent Administrator and defines or validates the jurisdictional area of the Broadcast Agent's organization"). Defendants assert this "distinguish[es] between the broadcast agent and the organization of which he is a member." Defs.' Op. Cl. Constr. Br. at 20.

Defendants further highlight passages from the specification setting forth the "hierarchical authorization scheme" of the "'admission control' method." *Id.* at 21. According to defendants, this hierarchical scheme requires a "broadcast agent" to be recognized as an individual. *Id.* at 21. Plaintiffs rebut this hierarchical authorization scheme, citing a particular embodiment in the specification "clearly indicat[ing] that an agent can be an automated sensor operated by an entity." Pls.' Resp. Cl. Constr. Br. at 13. Lastly, defendants offer various dictionary definitions for the term "agent" in an attempt to lend support for their proposed construction "comport[ing] with the plain and ordinary meaning of the word." Defs.' Op. Cl.

Constr. Br. at 21. According to the Oxford English Dictionary, an "agent" is "one who does the actual work of anything, as distinguished from the instigator or employer." *Id.* at 21. According to the American Heritage Dictionary of the English Language, an "agent" is "one that acts or has the power or authority to act." *Id.* at 21–22. And finally, according to Webster's Third New International Dictionary, an "agent" is "one who acts or exerts power or acts or performs an act or alternatively as a person responsible for his act or acts." *Id.* at 22.

2.   Plain and Ordinary Meaning

The Court begins with the intrinsic evidence to determine whether the plain and ordinary meaning of a "broadcast agent" can be anything other than an individual. "[I]t is improper to read limitations from a preferred embodiment described in the specification . . . into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). Here, the asserted patents do not "explicitly state[] that a 'broadcast agent' is limited to a specific person." Pls.' Op. Cl. Constr. Br. at 19. According to plaintiffs, such a limitation should not be read into the claims. *See Id.* By way of example, plaintiffs illustrate how a "single set of credentials" may be used by various individuals within a department or organization to submit a proposed broadcast for dissemination to a particular geographic region. *Id.*

The claims require the "broadcast agent" to take specific actions when operating the PLBS. For example, claim 42 of the '938 patent requires "validating the authority of a broadcast message originator [broadcast agent] *originating* the broadcast message record." '938 Patent at col. 43:50–51 (emphasis added). Applying plaintiffs' "single set of credentials" example to the claim language makes it difficult to reconcile how the "broadcast agent" could be anything other than an individual. Although the credentials themselves provide authorization, it is the broadcast message record that must be "originated." The act of originating the broadcast message record therefore requires specific action. Plaintiffs do not provide an explanation for how an entity or organization itself could take such action. This is reinforced by the myriad references in the specification discussed by defendants where the "broadcast agent" is referred to in specific terms as being an individual; not an entity, organization, or department. *See* Defs.' Op. Cl. Constr. Br. at 19–20. While the entity or organization may contribute to the determination of the identity of the "broadcast agent," a specific individual is required to carry out the functional requirements necessitated by the claims. Put differently, an entity or organization cannot itself perform the specific actions required by the claims.

Such an interpretation of "broadcast agent" is reinforced by the disclosure of a hierarchical authorization scheme in the specification. The hierarchical authorization scheme is organized as follows: an "administrative operator" sets parameters for the authorized transmission of messages; a "broadcast agent administrator" controls various "broadcast agents;" and a "broadcast agent" has delegated authority to transmit messages. Defs.' Op. Cl. Constr. Br. at 21; *see also* '938 Patent at col. 27:29–32, 7:9–12, 8:28–31, and 15:51–63. As the "broadcast agent administrator" directly delegates the authority to transmit authorized messages to the "broadcast agents," this suggests the "broadcast agents" were intended to be individuals fitting within this structured framework. Substituting the organization itself into this hierarchical framework would render this particular example of a hierarchical authorization scheme

incomprehensible. As the delegation of authority flows downward, it eventually reaches the lowest ranked authority in this limited framework. The lowest ranked authority cannot then represent the entire organization itself.

The embodiment plaintiffs cite in rebutting defendants alleged hierarchical authorization scheme does not refer to either a "broadcast agent" or a "broadcast message originator." Instead, this particular embodiment refers to a "broadcast agent *administrators*" ability to "predefine set messages in the message library, so that some accounts may broadcast only predefined messages." '938 Patent at col. 9:44–46. The predefined set messages may then be triggered by an automated input system, such as a sensor. Pls.' Resp. Cl. Constr. Br. at 13. Nowhere in this particular embodiment is either a "broadcast agent" or "broadcast message originator" implicated. Instead, the broadcast event is "triggered by an automatic machine," such as a sensor. '938 Patent at col. 9:63–64. Thus, the sensor performs the function operated by the "broadcast agent" in various other embodiments, including throughout the claims. Had plaintiffs intended for such automated systems to be included within the claim language, the claims would require usage of a term other than "broadcast agent" in order to cover such embodiments. The performance of similar functions does not necessarily cause a sensor to become a "broadcast agent" in much the same way as an answering machine's ability to record messages does not cause the machine to become a receptionist.

Though conveniently not cited by plaintiffs, the specification does in fact discuss how a "broadcast agent" may utilize the predefined messages, further bifurcating the role of a "broadcast agent" from that of a sensor (or the like). "Here, the Broadcast Agent has many more options to control the messages. . . . [T]he Broadcast Agent selects from a Message Library of standard messages available to this Broadcast Agent." '938 Patent at col. 9:51–52, 56–58. The claims do not recite the use of a sensor or similar technology; they refer to either a "broadcast agent" or a "broadcast message originator." "[W]hen an applicant uses different terms in a claim it is permissible to infer that he intended his choice of different terms to reflect a differentiation in the meaning of those terms." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004) (citing *Bancorp Servs., L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1373 (Fed. Cir. 2004)). The specification discloses embodiments utilizing something other than individuals for submitting a proposed broadcast message. Yet the claims use only the phrases "broadcast agent" and "broadcast message originator" for performing this function. According to the intrinsic record, the plain and ordinary meaning of these phrases requires submission of a proposed broadcast message by an individual.

3. Extrinsic Evidence

Similar to the Court's analysis for both "broadcast" and "broadcast message," the Court again finds the intrinsic evidence of record sufficient to construe the term "broadcast agent." Accordingly, the Court does not consider the weight of the extrinsic evidence in arriving at a final claim construction. *Vitronics*, 90 F.3d at 1583.

4. Construction of "Broadcast Message Originator/Broadcast Agent"

Viewed together with the numerous references of a "broadcast agent" by specific pronouns, descriptive terms, or titles, the specifications of the asserted patents "repeatedly and consistently" describe the "broadcast agent" as a particular individual. *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004) ("[T]he claims must be must be interpreted in light of the specification, . . . which repeatedly and consistently describes [the systems]."). While an automated system may perform a similar function to the "broadcast agent," the claims do not invoke language to include such systems under the gambit of the "broadcast agent." The specification provides specific examples which, when read in the context of the claims, require a "broadcast agent" to be an individual. Accordingly, the Court adopts defendants' proposed construction of "broadcast agent." Both a "broadcast agent" and "broadcast message originator" shall mean "a person who submitted a proposed broadcast message."

Plaintiffs' Proposed Construction	Defendants' Proposed Construction (as adopted by the Court)
a person or entity that requests the transmission of a broadcast message	*a person who submitted a proposed broadcast message*

F.   Disputed Claim Term #4: "Broadcast Message Originator Identifier"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
information that identifies the broadcast message originator (as construed)	a piece of information identifying the broadcast message originator (as construed)

Here, the parties agree the "broadcast message originator identifier" constitutes information which identifies the "broadcast message originator," as construed. The parties disagree, however, as to the magnitude of this information.

1.   Parties Arguments

Plaintiffs propose a "broadcast message originator identifier" may be any information identifying the "broadcast message originator." Pls.' Op. Cl. Constr. Br. at 19. "An originator identifier could be formed by the combination of various information, such as information that identifies the state in which the originator is located, the type of originator [], and specific office in which the originator is located." *Id.* Defendants argue a "broadcast message originator identifier" is restricted to "one piece of information—specifically, a 'User ID/Agent ID.'" Defs.' Op. Cl. Constr. Br. at 22. According to defendants, "the Broadcast Agent's user ID [is] the single piece of information used by the disclosed systems and methods to identify the Broadcast Agent. Nothing in the intrinsic evidence suggests that the 'broadcast message originator identifier' is anything other than a single piece of information used to identify the broadcast agent . . . ." *Id.* at 23. Plaintiffs rebut defendants proposed construction as "render[ing] the claims vague and indefinite, because, it is not clear what would constitute a single piece of information. Information is not a physical object." Pls.' Op. Cl. Constr. Br. at 20.

2.   Plain and Ordinary Meaning

The specification does not use the term "a piece of information." Defendants, however, use this term as a stand-in for a specific embodiment discussed in the specification—a "User ID/Agent ID." As support, defendants cite to a single passage in the specification of the '938 patent discussing the use of the "broadcast Agent's user ID" as the source of providing identification for the "broadcast agent." Defs.' Op. Cl. Constr. Br. at 22-23. As discussed previously, "limitations from a preferred embodiment described in the specification" should not be read into the claims "absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim*, 358 F.3d at 913. As plaintiffs note, "nothing in the patent specifications would limit the identifier to a single 'piece of information.'" Pls.' Op. Cl. Constr. Br. at 19. Defendants reference to only a single passage of the specification discussing one particular embodiment is insufficient to impart such a limitation into the claims. *Liebel-Flarsheim*, 358 F.3d at 913.

3.   Construction of "Broadcast Message Originator Identifier"

There is nothing in the intrinsic record, and neither party offers any extrinsic evidence, to warrant an interpretation of this claim term other than its plain and ordinary meaning. Here, plaintiffs offer the ordinary meaning of the claim term, which is "readily apparent" and requires "little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. A "broadcast message originator identifier" shall therefore mean "information that identifies the broadcast message originator."

Plaintiffs' Proposed Construction (as adopted by the Court)	Defendants' Proposed Construction
information that identifies the broadcast message originator (as construed)	a piece of information identifying the broadcast message originator (as construed)

G.   Disputed Claim Term #5: "Broadcast Message Originator Parameter"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
information regarding the broadcast message originator (as construed)	information associated with the broadcast message originator (as construed)

The parties agree a "broadcast message originator parameter" is "broader than a 'broadcast message originator identifier.'" Pls.' Op. Cl. Constr. Br. at 20; Defs.' Op. Cl. Constr. Br. at 30. The parties dispute, however, the scope of the modifying term, "parameter." Curiously, both plaintiffs and defendants argue their respective proposed constructions are narrower in scope. Tr. at 140:7–13 (Plaintiff argued a broadcast message originator parameter "has to concern or regard the broadcast message originator and not be just associated with it in some way."); 148:5–9 (Defendant argued "associated with" is "the narrower one of [two competing alternatives] better serv[ing] the public notice function of the claims.").

1.   Parties Arguments

Plaintiffs view their proposed construction as "more specific" than defendants, as the "parameter at issue is one that concerns the broadcast message originator." Pls.' Resp. Cl.

Constr. Br. at 15. Plaintiffs argue defendants' proposed construction is not only vague but may also "be interpreted . . . so broad as to subsume all other parts of the broadcast message record." Pls.' Op. Cl. Constr. Br. at 20. In the alternative, plaintiffs offer two additional proposed constructions illustrating the relationship between the "broadcast message originator" and the "parameter:" "concerning" or "related to." Pls.' Resp. Cl. Constr. Br. at 15.

Conversely, defendants view their proposed construction as using "the more definite term 'associated with' to describe the relationship between the information and the broadcast message originator." Defs.' Op. Cl. Constr. Br. at 24. Defendants provide a series of examples from the specification discussing the parameters. *See id.* at 23–24. According to defendants, "the specifications tie all these parameters to the Broadcast Agent." *Id.* at 24. Defendants' proposed construction "'associated with' [] describe[s] the relationship between the information and the broadcast message originator, while Plaintiffs' proposal uses the looser term 'regarding.'" *Id.* Defendants further attempt to invoke the doctrine of claim differentiation to discredit plaintiffs' proposed construction, arguing "Plaintiffs propose essentially the same construction for 'broadcast message originator identifier' [] and 'broadcast message originator parameter.'" *Id.* Defendants allege "the only meaningful difference between [claims 1 and 12 of the '938 patent] is the additional 'parameter' limitation of claim 12, making the presumption that 'identifier' and 'parameter' have different meanings 'especially strong.'" *Id.* at 25.

2.   **Plain and Ordinary Meaning**

As both parties claim to be asserting the narrower construction, the parties seemingly agree the disputed claim term should be given whichever construction the Court deems narrower. This is in accordance with guidance provided by the Federal Circuit: "[w]here there is an equal choice between a broader and a narrower meaning of a claim, and there is an enabling disclosure that indicates that the applicant is at least entitled to a claim having the narrower meaning, we consider the notice function of the claim to be best served by adopting the narrower meaning." *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996).

Here, the parties opposing constructions are nothing more than a preference for one word over another. Neither party established a meaningful difference between the two proposed constructions. What the parties do illustrate, however, is "broadcast message originator parameter" must in some way be related to the "broadcast message originator." For instance, plaintiffs cite a passage from the specification referencing various examples of a "broadcast message originator parameter." Pls.' Op. Cl. Constr. Br. at 21. These examples include a password, a target geographic area, or a message profile or language text parameter. *See* '938 Patent at col. 19:3–14. The common theme amongst these examples is their relation to the "broadcast message originator." Pls.' Op. Cl. Constr. Br. at 21. Similarly, defendants provide additional examples from the specification explicitly tying the parameter to the "broadcast agent originator." Defs.' Op. Cl. Constr. Br. at 23 (citing '938 Patent at col. 12:43–45) ("[t]he user parameter can include authorizations or limitations related to the Broadcast Agent"); *see also id.* (citing '938 Patent at col. 13:16–18) ("[a]n account data database can also provide stored information related to one or more accounts or Broadcast Agents") (internal reference numerals omitted).

In their responsive claim construction brief, plaintiffs most accurately stated this relationship: "[t]he parameter at issue is one that concerns the broadcast message originator. 'Concerning' or 'related to' also would be acceptable to Plaintiffs." Pls. Resp. Cl. Constr. Br. at 15 (emphasis omitted). The Court finds plaintiffs proposed alternative construction, "related to," best illustrates the relationship between the "broadcast message originator" and the "parameter" (as opposed to either "regarding" or "associated with"). *Id.* at 15. As shown in the above examples used throughout the specification, the "parameter" "relates to" the "broadcast agent originator."

3. Claim Differentiation

"The doctrine of claim differentiation 'create[s] a presumption that each claim in a patent has a different scope.'" *Versa Corp.*, 392 F.3d at 1330 (quoting *Comark Commc'ns*, 156 F.3d at 1187). This tool of claim construction "works best in the relationship between independent and dependent claims." *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006). Defendants assert the adoption of plaintiffs proposed construction, "regarding," renders "claim 1 of the '938 patent redundant of the language of dependent claim 12 in the same patent." Defs.' Op. Cl. Constr. Br. at 24. The Court, however, interprets the plain and ordinary meaning of the "parameter" to be any information "relating to" the "broadcast message originator."

During the *Markman* hearing, this Court elicited defendants' views regarding use of the phrase "relating to" for illustrating the relationship between the "broadcast message originator" and the "parameter:"

> THE COURT: What about, like, "related to"?   Is it information related to the originator?

> DEFENDANTS' COUNSEL: "Related to," again, just to my ears, hearing it for the first time, sounds more like "regarding" in that it seems to suggest some identifying [] information about the originator . . . .

Tr. at 147:12–17, ECF No. 75. Accordingly, as defendants seemingly interpret "regarding" and "related to" in a similar manner, defendants' arguments presented against the use of "regarding" to illustrate the relationship between the "broadcast message originator" and the "parameter" are equally applicable to the phrase "relating to."

Information can "relate to" something, such as an object or a person, without "identifying" the object or person. Substituting the Court's construction of "related to" for "regarding," plaintiffs illustrate this point in their responsive claim construction brief: "A significant difference exists between 'information that identifies' and 'information [relating to].' [As an] example: a Social Security Number is information that identifies a person, but the fact that person resides in Virginia is information [relating to] the person. Residence in Virginia does not identify the person." Pls.' Resp. Cl. Constr. Br. at 16. Invocation of the doctrine of claim differentiation therefore does not support defendants' argument attributing the same meaning to both the "identifier" and the "parameter." Rather, claim differentiation further reinforces the

differences between these two terms, with a "parameter" interpreted as the broader of the two descriptors.

4.   Construction of "Broadcast Message Originator Parameter"

According to its usage in the claims of the asserted patents, in addition to the consistent use throughout the specification, the "broadcast message originator parameter" is distinctly tied to the "broadcast message originator." Plaintiffs and defendants originally proposed constructions for the "parameter" are effectively indistinguishable. Further, the parties originally proposed constructions are equally ineffective to convey the proper relationship between what constitutes a "parameter" and the "broadcast message originator." Accordingly, the Court adopts an interpretation, raised in the alternative by plaintiffs, properly illustrating the relationship between the "parameter" and the "broadcast message originator." A "broadcast message originator parameter" shall mean "information relating to the broadcast message originator."

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
information regarding the broadcast message originator (as construed)	information associated with the broadcast message originator (as construed)
Court's Construction	
information relating to the broadcast message originator	

H.   Disputed Claim Term #6: "Generating a Validated Broadcast Message Record"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
creating a broadcast message record (as construed) which the system or method has determined to be valid	after validating, creating a broadcast message record (as construed) that further includes data indicating successful validation

The sixth and final claim term disputed by the parties is: "generating a validated broadcast message record." The parties agree the claim term "generating a validated broadcast message record" is not concerned with validation of the record itself. Rather, this "generating" step occurs post-validation and relates to creation of the validated "broadcast message record." *See* Pls.' Op. Cl. Constr. Br. at 22-23; Defs.' Op. Cl. Constr. Br. at 27. The parties dispute, however, the content of this "generated" record.

1.   Parties Arguments

Plaintiffs argue the mere existence of a copy of the validated "broadcast message record" indicates successful validation: "in the event that validation fails, no copy is made." Pls.' Op. Cl. Constr. Br. at 23. Plaintiffs point to a particular embodiment discussed in the specification where "generation" is accomplished by copying the "broadcast message record" to a distributor module. *Id.* "[I]f the broadcast message has not been declined for the particular network, then the message is passed on to [process 342]. In [process 342] a copy of all or the relevant parts of the Broadcast Request is sent to the Broadcast Distributor or placed in a queue." '938 Patent at col. 25:55–61 (internal reference numerals omitted). Plaintiffs rely on this embodiment for

supporting their contention that the "validated broadcast message record" "generated" by the "broadcast admission control module" is not required to include any additional data indicating successful validation. *See* Pls.' Op. Cl. Constr. Br. at 23. A construction requiring the "generated" record to include such additional data, according to plaintiffs, "attempts to add an additional limitation into the claim language." *Id.* at 22.

Defendants argue generation of the validated "broadcast message record" is for tracking the status of the requests, and therefore "generation" of the validated record requires incorporating "the creation of data indicating whether validation has occurred." Defs.' Op. Cl. Constr. Br. at 28. Defendants focus on the disclosure of the "broadcast admission control module's" ability to "generate[] reports regarding the broadcast messages sent via the system," including reports including validation data. *Id.* Defendants use this particular embodiment to conclude "the purpose of generating the validated broadcast message record is to enable tracking of the status of each broadcast message request." *Id.*

2.   Plain and Ordinary Meaning

According to the claims, the "broadcast admission control module" is responsible for "generating" the "validated broadcast message record." *See, e.g.*, '938 Patent at col. 39:34–37 ("said broadcast admission control module configured for generating a validated broadcast message record as a function of the validating"). The claims do not require the "generated" record to contain any additional data. There is no support in the claims themselves for adding an additional limitation to the "generated" record following validation not present in the "broadcast message record" pre-validation. *See Phillips*, 415 F.3d at 1314 ("the claims themselves provide substantial guidance as to the meaning of particular claim terms"). Defendants sole argument for incorporation of such additional data into the meaning of this claim term stems from the specification's disclosure of a report generating function; an embodiment discussing a different functional aspect of the "admission control module." *See* Defs.' Op. Cl. Constr. Br. at 28.

The claim language does not require the "admission control module" to generate such reports. Limitations from the specification are not to be read into the claims. *Liebel-Flarsheim*, 358 F.3d at 913. Additionally, the indication of such functionality for the "broadcast admission control module" in one embodiment does not require the presence of such functionality in all embodiments of the invention. *Hill-Rom Servs, Inc. v. Stryker Corp.*, 755 F.3d 1367, 1377 (Fed. Cir. 2014) ("The fact that the specification indicates that in one embodiment, messages are sent to the wall interface unit 'in accordance with the present invention,' does not mean that a wall interface unit must be present in all embodiments of the invention."). The claims only require the "broadcast message record" to be "generated" "as a function of the validating." '938 Patent at col. 39:34–37. Thus, "generation" of a "broadcast message record" itself serves as indication of the validation. *See* Pls.' Op. Cl. Constr. Br. at 23; Pls.' Resp. Cl. Constr. Br. at 18.

The functionality discussed in the independent claim therefore only requires "generation" of the "validated broadcast message record." Pls.' Resp. Cl. Constr. Br. at 19. The dependent claims expressly discuss alternative functionality of the "admission control module." *Baxalta Inc. v. Genentech, Inc.*, No. 19-1527, 2020 WL 5048435, at *3 (Fed. Cir. Aug. 27, 2020) ("The district court's construction which excludes these explicitly claimed embodiments [in the

dependent claims] is inconsistent with the plain language of the claims."). Further, "[u]nder principles of claim differentiation, we presume that the claims without this limitation do not require it." *Hill-Rom*, 755 F.3d at 1377. For example, dependent claim 22 discusses "initiating the reporting and sending of the subsequent broadcast message record." '938 Patent at col. 41:46–47. Claim 22 depends from claim 21, which configures the "broadcast admission control module" to validate a "subsequent broadcast message record indicating that all broadcast transmission network's decline the transmission of the subsequent broadcast message." '938 Patent at col. 41–44. The "broadcast admission control module" is thus specifically configured to allow for this alternative functionality in the dependent claims. The remaining dependent claims do not use the "validated broadcast message record" for the report functionality. *See* '938 Patent at col. 42:43–44 ("further comprising transmitting a report containing the broadcast message"); *id.* at col. 43:40–43 ("declining the transmission of the validated broadcast message record, and initiating the reporting of the declined broadcast message record"); *id.* at col. 44:31–34 ("generating a decline report in response to a success in the comparing to the broadcast transmission network decline parameter"); *id.* at col. 44:38–40 ("generating a security report in response to a failure of the validating of the broadcast message record"); *id.* at col. 46:15–17 ("generating a security report in response to a failure of validating the broadcast message record").

According to the intrinsic record, the plain and ordinary meaning of "generating a validated broadcast message record" requires only creation of the broadcast message record following successful validation.

3.   Construction of "Generating a Validated Broadcast Message Record"

The "validated broadcast message record" "generated" by the "broadcast admission control module" need not include any additional information not present prior to validation. Accordingly, as plaintiffs proposed, "generating a validated broadcast message record" shall mean "creating a broadcast message record (as construed) which the system or method has determined to be valid."

Plaintiffs' Proposed Construction (as adopted by the Court)	Defendants' Proposed Construction
creating a broadcast message record (as construed) which the system or method has determined to be valid	after validating, creating a broadcast message record (as construed) that further includes data indicating successful validation

III.   Means-Plus-Function Claim Terms Under 35 U.S.C. § 112(f)

Defendants argued claims 1 and 11-13 of the '938 patent are invalid as indefinite because the "module" terms, "broadcast admission control module" and "broadcast message distributor module," are subject to 35 U.S.C. § 112(f) and lack the necessary corresponding structure. *See* Defs.' Op. Cl. Constr. Br at 31–36. Plaintiffs argued the terms challenged by defendants are not means-plus-function terms, and "even if they were, the patent specification discloses sufficient corresponding structure." Pls.' Resp. Cl. Constr. Br. at 34.

A. Applicable Law

The requirements for the specification of a patent application are governed by 35 U.S.C. § 112. When the patent claims are directed to a combination comprising a series of elements, the patentee may invoke § 112(f)[5] as a unique claim drafting technique. *See* 35 U.S.C. § 112(f). "A patentee may express an 'element in a claim for a combination' 'as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.'" *HTC Corp. v. IPCom Gmbh & Co., KG*, 667 F.3d 1270, 1278 (Fed. Cir. 2012) (quoting 35 U.S.C. § 112(f)). Known as "means-plus-function" claiming, this drafting technique results in a claim construction covering "the corresponding structure, material, or acts described in the specification and equivalents thereof." *Id.* As stated by one scholar, "[a] means-plus-function claim element is not interpreted to cover every means of performing the function. Instead, the courts apply a different rule of claim construction, limiting the scope of these claims by reading in the particular technologies described in the patent specification." Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 Wis. L. Rev. 905, 916–17 (2013).

"The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed Cir. 2015). Determining whether § 112(f) applies to a particular claim limitation utilizes a series of rebuttable presumptions. When the phrase "means for" is used in a claim element, there is a rebuttable presumption § 112(f) applies. *Id.* Conversely, "the failure to use the word 'means' also creates a rebuttable presumption—this time that [§ 112(f)] does not apply." *Id.* at 1348. Thus, a party asserting the applicability of § 112(f) in the absence of the word "means" must "demonstrate[] that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Id.* at 1349 (quoting *Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998)).

If § 112(f) is applicable, the Federal Circuit prescribes a two-part test to determine whether a means-plus-function limitation is definite: first, identification of the particular claimed function; and second, identification of the corresponding structure, material, or acts performing the function as recited in the specification. *HTC Corp.*, 667 F.3d at 1278. When the claims are directed to software, step one requires "that the specification 'disclose an algorithm for performing the claimed function.'" *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012) (quoting *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008)). As a result, claims directed to software fall into one of two categories: "cases in which the specification discloses no algorithm" and "cases in which the specification does disclose an algorithm but a defendant contends that disclosure is inadequate." *Id.* at 1313. "[I]n a situation in which the specification discloses no algorithm, '[§ 112(f)] . . . has no application.'" *Id.*

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[5] Prior to revision as part of the America Invents Act ("AIA") in September 2012, 35 U.S.C. § 112 was organized according to a series of numbered paragraphs. What is currently 35 U.S.C. § 112(f) was previously identified as § 112(6) or § 112 sixth paragraph. The text of the pre and post-AIA provisions are identical, and both identifications of the statute are still in frequent use, as evidenced in both the parties' briefs and case law. While the Court will use the current codification as § 112(f) where possible, the terms may be used interchangeably.

The algorithmic structure need not be the operative source code itself. *See Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385–86 (Fed. Cir. 2011). "For computer-implemented procedures, the computer code is not required . . . . A description of the function in words may 'disclose, at least to the satisfaction of one of ordinary skill in the art, enough of an algorithm to provide the necessary structure under § 112, ¶ 6.'" *Id.* (quoting *Finisar Corp. v. DirecTV Grp, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008)). At step two, "[w]hether a specification adequately sets forth structure corresponding to a claimed function is viewed from the perspective of one skilled in the art." *HTC Corp.*, 667 F.3d at 1279. The standard used for evaluating the disclosure is not a "lofty standard in [] indefiniteness case[s]." *Finisar*, 523 F.3d at 1341. Thus, "[t]he party alleging that the specification fails to disclose sufficient corresponding structure must make that showing by clear and convincing evidence." *TecSec, Inc. v. Int'l Bus. Machs. Corp.*, 731 F.3d 1336, 1349 (Fed. Cir. 2013) (citing *Budde v. Harley–Davidson, Inc.,* 250 F.3d 1369, 1380–81 (Fed.Cir.2001)).

Expert discovery has not yet been conducted in this case. The parties have not been afforded the opportunity to present evidence regarding how a person of ordinary skill in the art would view the disclosure of the asserted patents. As a result, for purposes of claim construction, the Court need only determine whether the claims are interpreted as means-plus-function claims pursuant to the provisions of § 112(f). *See Triton Tech. of Tex., LLC v. Nintendo of Am., Inc.*, 753 F.3d 1375, 1378 (Fed. Cir. 2014) (affirming the district court's claim construction order finding certain claims indefinite under § 112(f) for failure to "disclose an algorithm for performing the claimed [] function"); *Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012) (affirming the district court's claim construction order finding certain claims indefinite under § 112 because "there is no algorithm described in any form for the [claimed] function").

The Court must therefore only determine whether the specification of the '938 patent falls into the first category of "no disclosed algorithm" cases, or the second category of "some disclosed algorithm" cases. *EON Corp. IP Holdings v. AT&T Mobility LLC*, 785 F.3d 616, 623–24 (Fed. Cir. 2015) ("Where the specification discloses no algorithm, the skilled artisan's knowledge is irrelevant. Where the specification discloses an algorithm that the accused infringer contends is inadequate, we judge the disclosure's sufficiency based on the skilled artisan's perspective."); *see also Noah Sys.*, 675 F.3d at 1313 (quoting *Aristocrat Techs. Austl. Pty v. Int'l Game Tech.*, 521 F.3d 1328, 1337 (Fed. Cir. 2008)) ("Where no structure appears, the question is 'not whether the algorithm that was disclosed was described with sufficient specificity, but whether an algorithm was disclosed at all.' When the specification discloses some algorithm, on the other hand, the question is whether the disclosed algorithm, from the viewpoint of a person of ordinary skill, is sufficient to define the structure and make the bounds of the claim understandable.").

If the claims fall into the first category of "no disclosed algorithm," the inquiry is complete and the claims are indefinite pursuant to § 112(f). *See EON Corp.*, 785 F.3d at 624 (finding claims classified in the first category of "no disclosed algorithm" cases indefinite). If the claims fall into the second category of "some disclosed algorithm," arguments regarding the sufficiency of the disclosed algorithms must be evaluated according to expert testimony "based on a skilled artisan's perspective." *Id*. Such evaluations are best left for summary judgment,

allowing the parties the ability to conduct expert discovery proceedings and present all necessary arguments and evidence.

B.   First Claim Term Disputed Under § 112(f): "Broadcast Admission Control Module"

The first claim term defendants seek to invalidate as indefinite under § 112(f) is "broadcast admission control module." Defs.' Op. Cl. Constr. Br. at 29. The claim term appears in independent claim 1 of the '938 patent, which is a system claim.

1.   Rebuttable Presumption Under § 112(f)

Initially, the Court must determine whether § 112(f) applies to this claim term. *Williamson*, 792 F.3d at 1348. The phrase "means for" does not appear in this claim term. Thus, a presumption exists that § 112(f) does not apply. *Id.* The burden is therefore on defendants to show the applicability of § 112(f) by establishing the failure to recite definite structure, or the recitation of function without reciting sufficient structure for performing said function. *Id.* According to defendants, "the 'broadcast admission control module' is a black box, defined entirely by function with no structure whatsoever." Defs. Op. Cl. Constr. Br. at 31. Defendants rely on *Williamson* in rebutting the presumption: "'Module' is a well-known nonce [single-use] word that can operate as a substitute for 'means' in the context of § 112, ¶ 6." *Williamson*, 792 F.3d at 1350. Defendants view claim 1 as "silent on the structure that achieves the functions of the 'broadcast admission control [module]' limitation." Defs. Op. Cl. Constr. Br. at 32.

Plaintiffs respond to defendants' attempts to overcome the presumption that § 112(f) does not apply by arguing the claim limitation "recite[s] sufficiently definite structure, including structure for performing the recited functions." Pls.' Op. Cl. Constr. Br. at 24. Specifically, plaintiffs allege the words preceding module, namely, that the module is a "broadcast admission control" module, directs the claim limitation itself to structure. *Id.* at 25. The recited functions following the module, "in the form of specific software and specific steps for the software to perform," represent limitations in the form of specific structure recited in the claim language itself. *Id.* at 25–26.

Similar to use of the word "module" in *Williamson*, the term is used in claim 1 to replace the word "means," followed by a recitation of various functions performed by the "broadcast admission control module." *Williamson*, 792 F.3d at 1350 ("It replaces the term 'means' with the term 'module' and recites three functions performed by the 'distributed learning control module.'"). In *Williamson*, the Federal Circuit directly addressed whether words preceding the term "module" could supply the necessary structure in the claim limitation itself: "While [the patentee] is correct that the presence of modifiers can change the meaning of 'module,' the presence of these particular terms does not provide any structural significance to the term 'module' in this case." *Williamson*, 792 F.3d at 1351. Here, there is no structure provided by the term "module" in claim 1. The modifying terms preceding the term "module" describe only the intended function of the module. Much the same way as words preceding "module" were insufficient to supply the necessary structure in *Williamson*, the significance of the "module"

being that of a "broadcast admission control" module does not supply the necessary structure here.

Just as with the functions themselves, the specific limitations constraining the functions do not provide structure. The "broadcast admission control module" validates a "broadcast message record" "as a function [of] one or more" software components. '938 Patent at col. 39:28–30. The "broadcast admission control module" further generates a broadcast message "as a function of the validating," *Id.* at col. 39:35–37. The limitations provided for the validation and generation functions do not themselves impart structure. In *Williamson*, the Federal Circuit addressed similar high-level functional limitations:

> While portions of the claim do describe certain inputs and outputs at a very high level (e.g., communications between the presenter and audience member computer systems), the claim does not describe how the 'distributed learning control module' interacts with other components in the distributed learning control server in a way that might inform the structural character of the limitation-in-question or otherwise impart structure to the 'distributed learning control module' as recited in the claim.

Williamson, 792 F.3d at 1351. The claim language here similarly "fail[s] to recite sufficiently definite structure." *Id.*

Defendants successfully rebut the presumption of § 112(f)'s applicability in the absence of the phrase "means for." The Court concludes the claim term "broadcast admission control module" is subject to the provisions of § 112(f). The Court need not reach defendants' remaining arguments regarding plaintiffs' possible conflation of means-plus-function vs. step-plus-function doctrine. *See* Defs.' Resp. Cl. Constr. Br. at 20.

2.   Function

The Court next turns to the first step in analyzing a claim term subject to the provisions of § 112(f): identifying the claimed function. *HTC Corp.*, 667 F.3d at 1278. The parties agree the corresponding functions of the "broadcast admission control module" are as follows: (1) receiving the broadcast message record; (2) validating the broadcast message record as a function [of] one or more of the broadcast message originator identifier, the broadcast target area, and a broadcast message transmission network parameter associated with a broadcast transmission network adapted for broadcasting the message to at least a portion of the broadcast target area ("validating the broadcast message record"); and (3) generating a validated broadcast message record as a function of the validating ("generating a validated broadcast message record"). *See* Pls.' Op. Cl. Constr. Br. at 27[6]; Defs.' Op. Cl. Constr. Br. at 32; First Joint Stmt. at 4.

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[6] Plaintiffs opening claim construction brief lists the third function as follows: "generating a validated broadcast message record generating a validated broadcast message record." Pls.' Op. Cl. Constr. Br. at 27. The Court assumes the repetition of this phrase was inadvertent and plaintiffs intended to recite the function from claim 1 of the '938 patent: "generating a validated broadcast message record *as a function of the validating.*" '938 Patent at col. 39:35–37 (emphasis added).

3.   Corresponding Structure

After establishing the claimed functions, step two identifies the corresponding structure, material, or acts performing the function as recited in the specification. *HTC Corp.*, 667 F.3d at 1278. The parties agree to the extent claim 1 of the '938 patent is directed to software the specification must disclose the corresponding structure in the form of algorithms. Pls.' Resp. Cl. Constr. Br. at 20 ("The parties agree that these elements are met by software that executes on a specifically identified server . . . . Accordingly, the only issue before this Court is whether the specification discloses sufficient structure in the form of an algorithm, to perform the identified functions."); Defs.' Op. Cl. Constr. Br. at 33 ("Although Defendants generally agree that any corresponding structure would be implemented in 'software,' disclosing software is not enough; the '938 patent specification must disclose an algorithm for performing each of the recited functions of the term.") (footnotes omitted).

The parties identified three claimed functions: "receiving the broadcast message record," "validating the broadcast message record," and "generating a validated broadcast message record." *See* First Joint Stmt. at 4. "Where there are multiple claimed functions, . . . the patentee must disclose adequate corresponding structure to perform *all* of the claimed functions." *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1374 (Fed. Cir. 2015); *see also Noah Sys.*, 675 F.3d at 1319 ("We cannot allow disclosure as to one function to fill the gaps in a specification as to a different, albeit related, function."). As stated previously for software functions, the disclosed algorithmic structure need not be the operative source code itself. *See Typhoon Touch*, 659 F.3d at 1385–86. "[W]here a disclosed algorithm supports some, but not all, of the functions associated with a means-plus-function limitation, we treat the specification as if no algorithm has been disclosed at all," placing such disclosures in the first category of "no disclosed algorithm" cases. *Noah Sys.*, 675 F.3d at 1318.

a.   Parties Arguments

While the disclosed algorithmic structure need not be the operative source code itself, defendants dispute whether there is any disclosure of algorithms at all. "None of the passages Plaintiffs cite from the specification disclose any structure for performing these functions because they fail to describe the steps the software implemented by the broadcast admission control module would take to perform those functions, which is tantamount to disclosing no algorithm at all." Defs.' Op. Cl. Constr. Br. at 33. Defendants thus argue the asserted patents fall into the first category of cases discussed in *Noah Systems*, or the "no disclosed algorithm" cases. *See Noah Sys*, 675 F.3d at 1313. Plaintiffs attribute the corresponding structure to the process steps provided in the specification for the "admission control module." Pls.' Op. Cl. Constr. Br. at 26. Specifically, plaintiffs rely on Figure 3 of the '938 patent, reproduced below, for illustrating the "specific steps performed by the admission control module." *Id.* at 26. [7]

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[7] Although the specification of the '938 patent makes passing references to each of the "Presswood" and "Haslemere" algorithms, the specification does not further define the steps associated with such algorithms. Plaintiffs also do not attempt to substantively rely on these alleged "algorithms" as a means of providing the corresponding structure to the associated functions. Accordingly, the Court will address the various algorithms
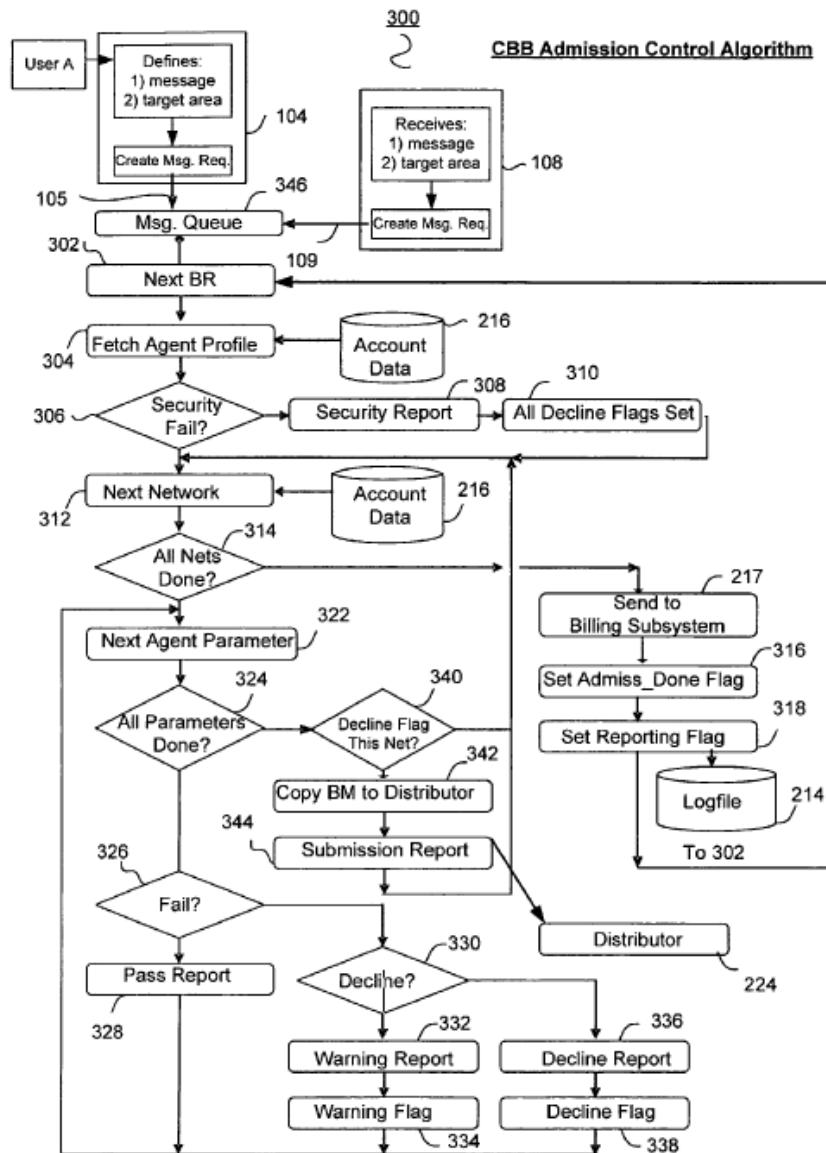
FIG. 3

'938 Patent at Fig. 3.

Plaintiffs then turn to the specification of the '938 patent for "[t]he algorithm used to perform these functions." Pls.' Op. Cl. Constr. Br. at 33. "Specifically, steps 302 through 342 in Figure 3 show the specific steps performed by the admission control module, which is software

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associated with the functions of claim 1 based upon the discrete steps provided in the specification, as opposed to either of the so-called "Presswood" or "Haslemere" algorithms.

running on the Broadcast Broker server (element 102 of Figure 1). The algorithm used to perform these functions is described in detail in the specification of the '938 patent at 24:1–25:58." *Id.* at 26.

b.   Receiving the Broadcast Message Record

The Court begins with the first claimed function: the "receiving" function. In *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371 (Fed. Cir. 2009), the Federal Circuit addressed the sufficiency of similarly disclosed corresponding structure for means-plus-function software claims. The technology at issue in *Blackboard* involved claims directed to an "Internet-based educational support system and related methods." 574 F.3d at 1373. Claim 1 of the patent at issue in *Blackboard* involved "a plurality of user computers" and "a server computer in communication with each of the user computers over a network."[8] *Id.* at 1376, 1382. The server computer contained numerous means-plus-function limitations, including a "means for assigning a level of access to and control of each data file based on a user of the system's predetermined role in a course" (the "means for assigning"). *Id.* at 1382.

The patentee in *Blackboard* attributed the structure performing the "means for assigning" to "a server computer with an access control manager and equivalents thereof." *Id.* The only description of the "access control manger" provided in the specification was as follows:

> Access control manager creates an access control list (ACL) for one or more subsystems in response to a request from a subsystem to have its resources protected through adherence to an ACL. Education support system provides multiple levels of access restrictions to enable different types of users to effectively interact with the system (e.g. access web pages, upload or download files, view grade information) while preserving confidentiality of information.

Id. (internal reference numerals omitted). The Federal Circuit found this description of the corresponding structure to be "simply an abstraction that describes the function of controlling

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[8] The entirety of claim 1 from the patent at issue in *Blackboard* is as follows:

   A course-based system for providing to an educational community of users access to a plurality of online courses, comprising:

   a)   a plurality of user computers, with each user computer being associated with a user of the system and with each user being capable of having predefined characteristics indicative of multiple predetermined roles in the system, each role providing a level of access to a plurality of data files associated with a particular course and a level of control over the data files associated with the course with the multiple predetermined user roles comprising at least two user's predetermined roles selected from the group consisting of a student role in one or more course associated with a student user, an instructor role in one or more courses associated with an instructor user and an administrator role associated with an administrator user, and

   b)   a server computer in communication with each of the user computers over a network, the server computer comprising: means for storing a plurality of data files associated with a course, means for assigning a level of access to and control of each data file based on a user of the system's predetermined role in a course; means for determining whether access to a data file associated with the course is authorized; means for allowing access to and control of the data associated with the course if authorization is granted based on the access level of the user of the system.

U.S. Patent No. 6,988,138 to Alcorn et al. at col. 30:18–48.

access . . . , which is performed by some undefined component of the system. . . . The specification contains no description of the structure or the process that the access control manager uses to perform the 'assigning' function." *Id.* at 1383. "[L]anguage simply describe[ing] the function to be performed" is insufficient, as it merely "describes an outcome, not a means for achieving that outcome." *Blackboard*, 574 F.3d at 1384. In order to provide the necessary corresponding structure, the specification must include language regarding how the software ensures performance of the functions, rather than simply describing the outcome. *See id.* at 1384 ("[The specification] says nothing about how the access control manager ensures that those functions are performed. As such, the language 'describes an outcome, not a means for achieving that outcome.'") (quoting *Aristocrat Techs.*, 521 F.3d at 1334).

Returning to claim 1 of the '938 patent, the specification describes the process of the "admission control module" receiving the "broadcast message request." The message requests are held in a queue, where they are "sequenced by predefined message priority codes that are included within the submitted broadcast message request." '938 Patent at col. 24:1–7. The "admission control module" then receives message requests from the queue either from "broadcast agents on site or from a remote Broadcast Agent System." *Id.* Unlike the "black box" discussed in *Blackboard*, the specification of the '938 patent specifically describes the process of where the message requests come from, as well as how the message requests are ordered prior to receipt. Rather than "simply describe[ing] the function to be performed," this portion of the specification specifically addresses how the software determines which message request will be received, as well as how the message will be received. *Blackboard*, 574 F.3d at 1384. This does not simply describe the outcome; the specification discusses a means for achieving that outcome. *See id.* at 1384. The specification of the '938 patent therefore more closely resembles that in *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376 (Fed. Cir. 2011).

In *Typhoon Touch*, the technology related to advantages provided by portable computer systems utilizing a touch screen display rather than a physical keyboard for data entry. *See id.* at 1380. Among the claim limitations for the portable, "keyboardless" computer were an "application generator further comprising means for cross-referencing responses," or the "means for cross-referencing."[9] *Id.* at 1380. The patentee focused on the following algorithm provided in the specification of the patent at issue for providing the necessary corresponding structure:

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[9] Claim 12, the representative claim of the technology at issue in *Typhoon Touch*, is as follows:
A portable, keyboardless, computer comprising:
> an input/output device for displaying inquiries on a touch-sensitive screen, said screen configured for entry of responses to said inquiries;
> a memory for storing at least one data collection application configured to determine contents and formats of said inquiries displayed on said screen;
> a processor coupled to said memory and said input/output device for executing said data collection application; and
> an application generator for generating said data collection application and for creating different functional libraries relating to said contents and said formats displayed on said screen, said application generator further comprising means for cross-referencing responses to said inquiries with possible responses from one of said libraries; and
> a run-time utility operating in conjunction with said processor to execute said application and said libraries to facilitate data collection operations.

Typhoon Touch, 659 F.3d at 1379–80.

"Cross-referencing entails the matching of entered responses with a library of possible responses, and, if a match is encountered, displaying the fact of the match, otherwise alerting the user, or displaying information stored in memory fields associated with that library entry." *Id.* at 1385. The patentee asserted this disclosure contained "sufficient algorithmic structure for the routine programmatic procedures needed to provide cross-referencing responses to inquiries." *Id.*

In the '938 patent, the step-by-step process for the "receiving" function discloses placing the "broadcast message request" in a queue, sequencing the messages within the queue based upon "predefined message priority codes that are included within the submitted broadcast message request," and then retrieving the next broadcast message request from the queue. '938 patent at 24:1–7. All defendants offer to combat the "receiving" function is what appears to be an incomplete thought: "For example, as to the 'receiving' function, although the method begins at a 'Next Broadcast Agent Message Request (BR) Process 302' in which 'BR messages are held in a message queue 346 and may be received from broadcast agents on site or from a remote Broadcast Agent System.'" Defs.' Op. Cl. Constr. Br. at 35–36 (quoting '938 Patent at col. 24:1–4). Defendants do not offer any further explanation regarding the "receiving" function in their opening claim construction brief. In their responsive claim construction brief, defendants state only that "the portions of the '938 patent that allegedly correspond to the first function of 'receiving the broadcast record' entirely overlap with the portions of the specification allegedly corresponding to the second and third functions." Defs. Resp. Cl. Constr. Br. at 27. These statements are insufficient to overcome the step-by-step algorithmic process set forth in the specification.

The specification of the '938 patent therefore discloses an algorithm in the form of a step-by-step process for the "broadcast admission control module's" performance of the "receiving function."

c. Validating the Broadcast Message Record

Next, the Court evaluates the "validating" function. The "validating" function, however, is comprised of three separate sub-functions. The "validating" function validates the "broadcast message record" as a function of one or more of: (1) the broadcast message originator identifier; (2) the broadcast target area; and (3) a broadcast message transmission network parameter associated with a broadcast transmission network adapted for broadcasting the message to at least a portion of the broadcast target area. '938 Patent at col. 39:28–34.

The Court finds the Federal Circuit's discussion from *Noah Systems* helpful in determining whether the disclosure in the specification constitutes any algorithm at all. In *Noah Systems*, the patent at issue related to an "automated accounting system include[ing] a financial accounting computer, a financial transaction computer, a communication means, and an access means."[10] *Noah Systems*, 675 F.3d at 1305. The parties agreed the claim term "access means"

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[10] Claim 12, the representative independent claim at issue in *Noah Systems*, is reproduced below:
  A financial accounting system for a first entity such as an individual or a business, said system comprising:
    a financial accounting computer having at least one file;

was subject to § 112(f). *Id.* at 1307. The parties also agreed the function performed by the "access means" was "providing access to the file of the financial accounting computer for the first entity and/or agents of the first entity so that the first entity and/or the agent can perform one or more of the activities selected from the group consisting of entering, deleting, reviewing, adjusting and processing the data inputs." *Id.* The parties disputed, however, "what structure perform[ed] this function." *Id.* The patentee argued that "[t]he structure includes the financial accounting computer . . . which is programmed to allow access to files on the computer upon entry of a passcode." *Id.* The defendant argued "the structure was indefinite because the specification disclosed no algorithm by which the computer was programmed to perform the function asserted in the claims." *Id.*

The Federal Circuit recognized two functions in the claim limitation: (1) providing access to the file; and (2) once access is provided, enabling the performance of delineated operations. *Noah Systems*, 675 F.3d at 1314. The Court found sufficient disclosure in the specification for the function of providing access to the file: "an algorithm for the passcode function associated with the 'access means.'" *Id.* at 1313. Specifically, the specification was found to disclose "authorized agents are provided with passcodes and that agents cannot enter, delete, review, adjust or process data inputs within the master ledger unless the passcode is verified." *Id.* While not dispositive of whether this disclosed algorithm was sufficient to supply necessary structure under § 112(f), it was "sufficient to clearly link this structure with the 'access means' limitation" for purposes of satisfying the disclosure of at least *some* algorithm. *Id.*

As the claim limitation involved "two distinct functional components," the Court required the disclosure of at least some algorithm for *each* function. *Id.* When turning to the second function for performing delineated operations, the specification "only describe[d] how passcodes are issued to authorized agents, and how the system prevents entries to the master ledger from being processed unless the passcode is verified." *Id.* at 1314 (internal citations omitted). The delineated operations were deemed "specialized functions which cannot be accomplished absent specialized programming." *Noah Systems*, 675 F.3d at 1315. While the patentee attempted to point to specific software for performing the operations, those "portions of the specification that describe what occurs [in the specified software], however, merely recite functional, not structural, language." *Id.* at 1316–17. "This type of purely functional language, which simply restates the function associated with the means-plus-function limitation, is insufficient to provide the required corresponding structure." *Id.* at 1317.

Returning to claim 1 of the '938 patent, the "validating" function, similar to the "access means" discussed in *Noah Systems*, is comprised of three separate sub-functions validating the

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a financial transaction computer for receiving data inputs, said data inputs including electronically recorded financial transactions made between said first entity and a second entity;

first communication means for transferring said data inputs from said financial transaction computer to said file of said financial accounting computer; and

means for providing access to said file of said financial accounting computer for said first entity and/or agents of said first entity so that said first entity and/or said agent can perform one or more activities selected from the group consisting of entering, deleting, reviewing, adjusting and processing said data inputs.

Noah Systems, 357 F.3d at 1306–07.

"broadcast message record" as a function of one or more of: (1) the broadcast message originator identifier; (2) the broadcast target area; and (3) a broadcast message transmission network parameter associated with a broadcast transmission network adapted for broadcasting the message to at least a portion of the broadcast target area. *See* '938 Patent at col. 39:28–34. For validating as a function of the broadcast message originator identifier, the specification discloses a "Security Fail process" which includes the steps of checking the User ID "against the password and authentication key entered in the database." *Id.* at col. 24:12–14.

The specification provides the following steps for validating as a function of the broadcast target area: "[T]he Admission Control Subsystem fetches a Broadcast Agent profile from the account data database. It checks all the parameters of the Broadcast Agent and message to determine if the message will be admitted or declined." *Id.* at col. 16:7–11 (internal reference numerals omitted). Of the parameters checked, the Admission Control checks "the Broadcast Target Area/Footprint against the profile. If not within the Jurisdiction the message will be declined." *Id.* at col. 16:21–24 (internal reference numerals omitted).

Finally, when validating as a function of broadcast message transmission network parameters, the specification provides the following:

> The networks requested are checked against the account data database. The Web Portal may have participating networks that the account data database has defined, however in some cases some networks may accept some channels while others do not. If so, the broadcast may continue on the allowed networks and declined on others, or it may be declined altogether. If Admission Control is satisfied that the Broadcast Request if valid, then it is sent to the Distributor.

Id. at col. 16:42–48 (internal reference numerals omitted).

For each of the three "validating functions" prescribed in claim 1, the specification provides an algorithm, in prose form, detailing the specific steps involved in the particular validation process with respect to the admission control module. These disclosures are "sufficient to clearly link this structure with the [means-plus-function] limitation." *Noah Sys.*, 675 F.3d at 1313. Defendants only attempt to rebut this link to structure is that the "generating" function "does not describe how 'a validated broadcast message record' is generated 'as a function of the validating.'" Defs.' Op. Cl. Constr. Br. at 36 (quoting '938 Patent at col. 25:56–65). Defendants argument misses the mark at this stage. Rather than challenging whether *any* algorithm is disclosed, which is what defendants initially stated their argument was directed to, defendants shift gears and attempt to focus on the sufficiency of the disclosed algorithm. Absent the expert reports, declarations, and testimony necessary to evaluate the sufficiency of any disclosed algorithms, the Court is unable to make such a determination at this stage "based on the skilled artisan's perspective." *EON Corp*, 785 F.3d at 624. Such arguments are better reserved for summary judgment in this case, after the parties are afforded the opportunity to submit expert evidence regarding a person having ordinary skill in the art. *Noah Sys.*, 675 F.3d at 1313 ("When the specification discloses some algorithm, on the other hand, the question is whether the disclosed algorithm, from the viewpoint of a person of ordinary skill, is sufficient to define the structure and make the bounds of the claim understandable.").

The present inquiry is concerned only with whether the disclosed algorithm provides a "step-by-step procedure for accomplishing a given result." *Ergo Licensing*, 673 F.3d at 1365. The fact that the algorithms are disclosed in prose is of no consequence to their applicability. *Noah Sys.*, 675 F.3d at 1312 ("The specification can express the algorithm 'in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.'") (quoting *Finisar*, 523 F.3d at 1340).[11] The "validating" function is comprised of several sub-functions, therefore requiring the disclosure of an algorithm to satisfy each sub-function. The specification of the '938 patent contains a step-by-step procedure for performing each of the various "validating" sub-functions sufficient to constitute the disclosure of an algorithm.

d.   Generating a Validated Broadcast Message Record

Lastly, the Court turns to the third and final function of the "admission control module," the "generating" function. The specification of the '938 patent states the following:

> [I]f the broadcast message has not been declined for the particular network, then the message is passed on to a Copy to Broadcast Request Distributor process. In [this] process a copy of all or the relevant parts of the Broadcast Request is sent to the Broadcast Distributor or placed in a queue. The Broadcast Distributor may reformat the data according to one or more predefined parameters, formats or protocol associated with the transmission facility or link for communicating to the Carrier or the Carrier Broadcast center (CBC).

'938 Patent at col. 25:56–61. This algorithm provides the steps for generating the "validated broadcast message record," which only reaches this step after passing the previous steps outlined for the various validation processes. That is, a "validated broadcast message record" is only generated at this step after successful validation; if the "broadcast message record" is declined at one of the previous steps in the validating process, the "validated broadcast message record" is never "generated." *See id.* The algorithm further discloses the content of the generated message record as "a copy of all or the relevant parts" of the message record. This "generating" function is not an overly complex function and accordingly need not be accompanied by any elaborate disclosure regarding the corresponding structure in the specification. This is particularly true in the present case, where all that is required is the disclosure of *some* algorithm.

Defendants attempt to group the "generating" function with the "validating" function, arguing "this function falls with the 'validating' function, which as discussed previously, is not

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[11] Defendants further suggest the phrasing of claim 1 with regards to the "one or more of . . . and" language requires the specification to disclose algorithms for validating based upon each function discussed individually. *See* Defs.' Op. Cl. Constr. Br. at 35. Defendants then point to the portion of the specification discussing validation of the broadcast message record as a function of a "combination of factors." *Id.* According to defendants, because there is no disclosure of validating "only based on one item," the specification is insufficient to disclose sufficient structure of an algorithm for validating. *Id.* Despite defendants' lack of authority for this proposition, plaintiffs adequately dispose of this argument by identifying the "Security Fail process" as an example of a validation function disclosed individually. *See* Pls.' Resp. Cl. Constr. Br. at 26.

described in the specification." Defs. Op. Cl. Constr. Br. at 36. As evidenced by the portions of the specification reproduced above, the '938 patent does disclose at least some step-by-step process for the "generating" function. As with the "validating" function, whether the algorithm in prose is a *sufficient* algorithm cannot be answered on the current record before the Court.

The Court therefore finds the disclosure of an algorithm for each of the various functions, and sub-functions, performed by the "broadcast admission control module" of claim 1 of the '938 patent. Accordingly, although the "broadcast admission control module" is subject to § 112(f), this particular claim limitation falls into the second category of disclosed algorithm cases, or the "some disclosed algorithm" cases discussed in *Noah Systems*. The sufficiency of the disclosed algorithms, however, cannot be determined at this stage of proceedings based upon the evidence currently before the Court. *Noah Sys.*, 675 F.3d at 1314 (To decide if the disclosure of an algorithm is sufficient in "some disclosed algorithm" cases "require[s] consideration of what one skilled in the art would understand from that disclosure, whether by way of expert testimony or otherwise."). Nothing in this Opinion and Order shall be seen to prohibit the parties from raising the sufficiency of the disclosed algorithms on summary judgment. The Court holds only that the "broadcast admission control module" is a means-plus-function claim limitation pursuant to § 112(f) for which an algorithm is disclosed.

C.   Second Claim Term Disputed Under § 112(f): "Broadcast Message Distributor Module"

The second term defendants seek to invalidate as indefinite under § 112(f) is "broadcast message distributor module." Defs.' Op. Cl. Constr. Br. at 36. This claim term, like the "broadcast admission control module," appears in independent claim 1 of the '938 patent.

1.   Rebuttable Presumption Under § 112(f)

Like the "broadcast admission control module," the phrase "means for" does not appear in this claim term. '938 Patent at col. 39:38. A presumption therefore exists that § 112(f) does not apply. *Williamson*, 792 F.3d at 1348. The burden is on defendants to show the applicability of § 112(f) by establishing the failure to recite definite structure, or the recitation of function without reciting sufficient structure for performing said function. *Id.* at 1348. In much the same was as for the "broadcast admission control module," defendants rely on *Williamson* in rebutting the presumption. "'Module' is a well-known nonce [single-use] word that can operate as a substitute for 'means' in the context of § 112, ¶ 6." *Id.* at 1350.

Similar to use of the word "module" in *Williamson*, "module" is used in claim 1 to replace the word "means," followed by recitation of various functions performed by the "broadcast message distributor module." *See id.* at 1350. While the parties disagree on the precise functions performed by the "broadcast message distributor module," the parties agree to the extent the distributor module at least "receiv[es] the validated broadcast message record" and "transmit[s] the broadcast message and the broadcast target area, or a part thereof, to an output interface." *See* Defs.' Op. Cl. Constr. Br. at 36.

Similar to the discussion above regarding the "broadcast admission control module," there is no structure provided by "module" in the claim term "broadcast message distributor module" as used in claim 1. In the same manner as the words preceding "module" are insufficient to supply the necessary structure in either *Williamson* or for the "broadcast admission control module" above, the significance of the "module" being a "broadcast message distributor" module does not supply the necessary structure. *See Williamson*, 792 F.3d at 1351. The modifying terms preceding the term "module" describe only the intended function of the module. The significance of the "module" being that of a "broadcast message distributor" module does not supply the necessary structure. Just as with the functions themselves, the specific limitations constraining the functions do not provide structure. The "broadcast message distributor module" receives the validated "broadcast message record" and transmits the broadcast message and broadcast target area to an output interface for distribution to the broadcast target area. '938 Patent at col. 39:39–43. These limitations do not themselves impart any structure to the claims. *See Williamson*, 792 F.3d at 1351.

Defendants successfully rebut § 112(f)'s presumption for the claim term "broadcast message distributor module" in the absence of the phrase "means for." The claim term "broadcast message distributor module" is subject to the provisions of § 112(f).

2.   Function

The Court next turns to the first step in analyzing a claim term subject to § 112(f): identifying the claimed function. *HTC Corp.*, 667 F.3d at 1278. Here, the parties disagree as to the corresponding functions of the "broadcast message distributor module." Plaintiffs argue the "broadcast message distributor module" performs the following functions: (1) receiving the validated broadcast message record; and (2) transmitting the broadcast message and the broadcast target area, or a part thereof, to an output interface. Pls.' Op. Cl. Constr. Br. at 28. Defendants argue the "broadcast message distributor module" performs the following functions: (1) receiving the validated broadcast message record; and (2) transmitting the broadcast message and the broadcast target area, or a part thereof, to an output interface *configured for distributing the broadcast message to at least a portion of the broadcast target area*. Defs.' Op. Cl. Constr. Br. at 36 (emphasis added).

The primary difference between the parties' arguments is whether the function of the "broadcast message distributor module" requires the output interface to which the broadcast message is transmitted be specifically configured. "Once a court establishes that a means-plus-function limitation is at issue, it must identify and construe that limitation, thereby determining what the claimed function is." *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1319 (Fed. Cir. 2003). Identification of the claimed function must not improperly narrow or limit "beyond the scope of the claim language." *Id.* The function must also not be "improperly broadened by ignoring the clear limitations contained in the claim language." *Id.* The Court construes the function "to include the limitations contained in the claim language." *Id.* The Court must therefore determine whether the "output interface" must be configured "for distributing the broadcast message to at least a portion of the broadcast target area" as a claimed function of the "broadcast message distributor module."

In *Computer Docking Station Corp. v. Dell, Inc.*, the United States District Court for the Western District of Wisconsin analyzed a means-plus-function limitation wherein one of the parties similarly attempted to narrow the scope of the claims by expanding the definition of the claimed function. No. 06-32, 2006 WL 5999613 (W.D. Wis., Aug. 16, 2006), *aff'd*, 519 F.3d 1366 (Fed. Cir. 2008). At issue in *Computer Docking Station* was U.S. Patent No. 5,157,645 ("the '645 patent") for "a portable computer with a docking connector and a method of connecting the computer to multiple peripheral devices through the docking connector." *Id.* at *1. Independent claim 20 of the '645 patent contained the following claim element: "a docking connection means in which the housing rests for connecting the microprocessor with computer peripheral devices, said docking connection means comprising a single connector which mates with the single connector on the housing." *Id.* at *3.[12] The parties disputed whether the "'in which the housing rests' limitation should be included in the claimed function." *Id.* at *21.

In evaluating the functionality of the "in which the housing rests" limitation, the District Court for the Western District of Wisconsin found:

> The present case is distinguishable from *Lockheed Martin* because the phrase "in which the housing rests" is not a functional limitation. In *Lockheed Martin*, the portion of the claim not included in the claimed function by the district court limited the function of "rotating the wheel" to rotating it "in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite." In the present case, "in which the housing rests" does not expand or limit the function of the docking connection means, which is to connect the microprocessor to the peripheral devices.

Id. at *21.

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[12] The entirety of claim 20 of the '645 patent is reproduced below:
   A portable computer microprocessing system comprising:
  a) a microprocessor for processing instructions;
  b) a housing containing the microprocessor;
  c) a plurality of computer-peripheral-device-specific connectors in electrical communication with the microprocessor such that each of said plurality of computer-peripheral-device-specific connectors provides a computer-peripheral-device-specific data link to said microprocessor, said connectors for connecting the microprocessor to specific computer peripheral devices and being mounted on the housing; and
  d) another single connector on the housing, said single connector comprising a set of pins, said set further comprising a plurality of subsets of computer-peripheral-device-specific pins being in electrical communication with said microprocessor such that one of each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors, said single connector for making all connections from the microprocessor to said specific computer peripheral devices; and
  e) a docking connection means in which the housing rests for connecting the microprocessor with computer peripheral devices, said docking connection means comprising a single connector which mates with the single connector on the housing.

Similarly here, reading the means-plus-function limitation to include the configuration of the "output interface" would improperly narrow the scope of the claim language. *See Lockheed*, 324 F.3d at 1319; *Computer Docking Station*, 2006 WL at *21. The language of claim 1 requires the "broadcast message distributor module" to be configured for both "receiving" and "transmitting" the "broadcast message." '938 Patent at col. 39:38–41. The functional aspect of this means-plus-function limitation ends with transmission to the "output interface." While the "output interface" may itself perform some additional function, such as distribution of the "broadcast message," any such functionality is separate and apart from the function associated with the "broadcast message distributor module." Any specific configuration of the "output interface" is not a function of the "broadcast message distributor module." The Court recognizes the claimed function of the "broadcast message distributor module" to be: (1) receiving the validated broadcast message record; and (2) transmitting the broadcast message and the broadcast target area, or a part thereof, to an output interface.

3.   Corresponding Structure

After establishing the claimed functions, step two identifies the corresponding structure, material, or acts performing the function as recited in the specification. *HTC Corp.*, 667 F.3d at 1278. As the "broadcast message distributor module" of claim 1 is directed to software, the specification must disclose the corresponding structure in the form of algorithms. *See* Pls.' Resp. Cl. Constr. Br. at 20; Defs.' Op. Cl. Constr. Br. at 33. Pursuant to the above discussion of *Noah Systems*, the specification must contain a disclosed algorithm for each of the two claimed functions. *Noah Sys.*, 675 F.3d at 1318.

a.   Parties Arguments

While the disclosed algorithmic structure need not be the operative source code itself, defendants again dispute whether any algorithm is disclosed at all. "Contrary to Plaintiffs' assertions, however, the '938 patent fails to describe how the software performs all of the claimed functions of the broadcast message distributor module, which is tantamount to disclosing no algorithm at all." Defs.' Op. Cl. Constr. Br. at 37-38. Plaintiffs turn to a flow chart containing the "broadcast distributor module" as shown in Figure 2, reproduced below, in addition to a large swath of the specification of the '938 patent at col. 13:33–14:65 for the corresponding structure.
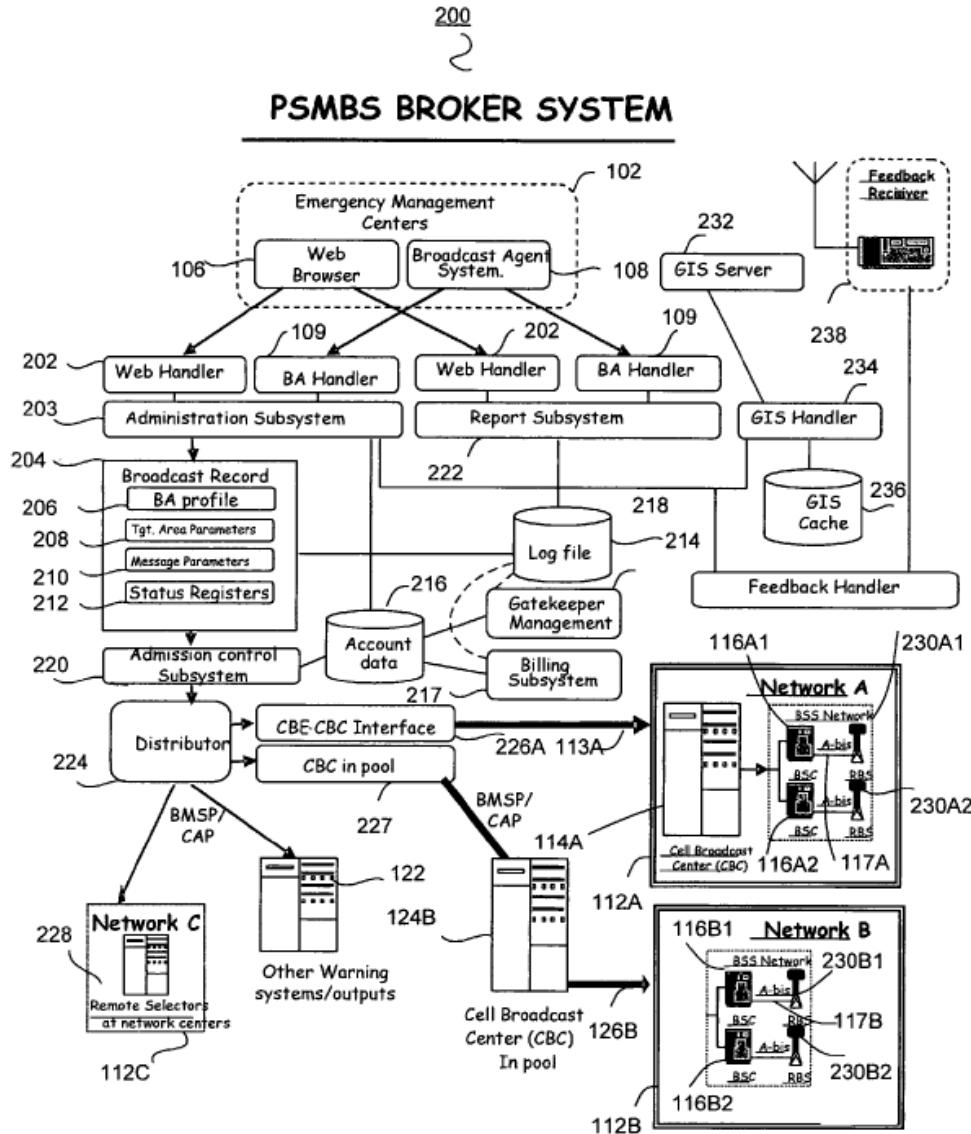
FIG. 2

'938 Patent at Fig. 2; Pls.' Op. Cl. Constr. Br. at 28.

Defendants argue the flow chart from Figure 2 does note "describe[] the operation of the distributor module" in anything but "general terms." Defs.' Op. Cl. Constr. Br. at 38. According to defendants, the "specification lacks any disclosure of how the software . . . uses the desired target area for a message to identify which networks or service providers to transmit the message to." *Id*. at 38–39.[13] Plaintiffs again refer to the distributor of Figure 2, reference numeral 224, as

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[13] Defendants additional arguments relate to the configuration of the "output interface," which the Court determined is not a function of the "broadcast message distributor module." Defs.' Op. Cl. Constr. Br. at 39. Accordingly, the

well as the following disclosure in the specification discussing the process dictating transmission of the broadcast request following submission to the distributor:

> If the carrier has provided its facility, network addresses or location coverage area data to the PLBS[], the Distributor converts the target area map parameters entered by the Broadcast Agent into [] network addresses and transmits the message parameters and associated network addresses to the carrier via the carrier's Carrier Broadcast Center. For carriers that elect not to provide the [PLBS] the details of the networks including the network facility addresses, the Distributor transmits the message and the target broadcast area coordinates of the target broadcast area to the carrier. The carrier performs the required conversions of target broadcast area to network or location addresses, such as cell site identifiers.

'938 Patent at col. 17:21–34 (internal reference numerals omitted); Pls.' Op. Cl. Constr. Br. at 28.

b.   Receiving the Validated Broadcast Message Record

Similar to the "broadcast admission control module" discussed above, the first function of the "broadcast message distributor module" is a "receiving" function. "If Admission Control is satisfied that the Broadcast Request is valid, then it is sent to the Distributor." '938 Patent at col. 16:49–50 (internal reference numerals omitted). This process is illustrated in Figure 2 above, where following the "generating" step of the "broadcast admission control module," the "broadcast request" is "sent to the Broadcast Distributor or placed in a queue." *Id.* at col. 25:56–61. The specification further states: "[a] Distributor receives the broadcast message request and maps the Broadcast Agent's broadcast target area to determine which broadcast distribution networks or network service providers have networks providing broadcast distribution systems serving the broadcast target area." *Id.* at col. 13:33–43 (internal reference numerals omitted).

Defendants assert "[t]he specification does not describe how the broadcast message request or message profile is received." Defs.' Op. Cl. Constr. Br. at 39–40. Plaintiffs argue the "broadcast message distributor module" either "receives the validated broadcast record directly from the admission control module, or it reads it from the queue." Pls. Resp. Cl. Constr. Br. at 27 (citing '938 Patent at col. 25:56–61). The specification "'describes an outcome, not a means for achieving that outcome.'" *Blackboard*, 574 F.3d at 1384 (quoting *Aristocrat Techs.*, 521 F.3d at 1334). When a broadcast message request is deemed valid by admission control, the "broadcast message distributor module" receives the validated broadcast message record. '938 Patent at col. 16:49–50. When the broadcast message request is not valid, the request is placed in a queue. *Id.* at col. 25:56–61. Accordingly, the specification does provide the process by which the broadcast message request is received by the "broadcast message distributor module." The present inquiry looks only to whether any algorithm at all is disclosed; not the sufficiency of said algorithm for supplying the corresponding structure to the claimed function. *See EON Corp.*, 785 F.3d at 623–24.

Court does not address these additional arguments when looking to the corresponding structure disclosed in the specification.

The specification of the '938 patent therefore discloses an algorithm sufficient to provide the corresponding structure necessary under § 112(f) for the "receiving" function of the "broadcast message distributor module."

c.   Transmitting the Broadcast Message Record

Second, the Court evaluates the "transmitting" function of the "broadcast message distributor module" for the presence of any disclosed algorithm. The specification of the '938 patent provides discrete steps for transmitting the broadcast request according to two different factual scenarios. Where the carrier supplies sufficient information, the distributor performs a conversion process to enable transmission of the already-converted message to the carrier via an already-established pathway. *See* '938 Patent at col. 17:21–27. Where the carrier does not supply sufficient information, the distributor transmits the message and associated information directly to the carrier, whereby the carrier then performs the necessary conversions. *Id.* at col. 17:28–34.

The specification further states:

A Distributor receives the broadcast message request and maps the Broadcast Agent's broadcast target area to determine which broadcast distribution networks or network service providers have networks providing distribution systems serving the broadcast target area. Once the Distributor has identified the broadcast distribution networks for the broadcast target area, it determines whether the broadcast distribution network has its own Cell Broadcast Center and an associated service Bureau . . . to Cell Broadcast Center . . . interface.

Id. at col. 13:33–43 (internal reference numerals omitted). Defendants argue the specification fails to "describe how the distributor 'maps' the target area or 'determines' which networks or service providers serve the target area." Defs. Op. Cl. Constr. Br. at 38. Similar to the "validating" and "generating" functions for the "broadcast admission control module," defendants again conflate the sufficiency of the disclosed algorithm with whether any algorithm is disclosed: "the specification lacks any disclosure of how the software (of the distributor module or otherwise) uses the desired target area for a message to identify which networks or service providers to transmit the message to." Defs. Op. Cl. Constr. Br. at 38–39. Such a high level of detail is not required to satisfy the disclosure of some algorithm so as to avoid classification into the "no disclosed algorithm" class of cases; all that is required is disclosure "sufficient to clearly link this structure with the [means-plus-function] limitation." *Noah Sys.*, 675 F.3d at 1313.

For example, in *Triton Tech of Tex., LLC v. Nintendo of Am., Inc.*, the patentee argued the specification's disclosure of the term "numerical integration" provided an algorithm for performing the "integrator means" function. 753 F.3d 1375, 1378–79 (Fed. Cir. 2014). The Federal Circuit affirmed the district court's finding that "numerical integration is not an algorithm but is instead an entire class of different possible algorithms used to perform integration. Disclosing the broad class of 'numerical integration' does not limit the scope of the claim to the 'corresponding structure, material, or acts' that perform the function, as required by

Section 112." *Id.* at 1379. Here, the specification discloses more than merely "an entire class of different possible algorithms." Rather, the specification traces a step-by-step procedure for accomplishing the "transmitting" function, which is more than merely a "restatement of the []function itself." *See* '938 Patent at col. 17:21–27, col. 17:28–34, and col. 13:33–43.

Defendants further attempt to focus on passing references made to the "Presswood Algorithm" in the specification of the '938 patent. *See* Defs. Op. Cl. Constr. Br. at 39 ("But there is no disclosure of the "Presswood Algorithm," nor any suggestion that this algorithm would be well-known to one of ordinary skill in the art at the time."). The disclosure or content of the so-called "Presswood Algorithm" is immaterial given the '938 patent's disclosure of the above algorithm for the "transmitting" function.

The Court therefore finds the disclosure of an algorithm for each of the various functions, performed by the "broadcast message distributor module" of claim 1 of the '938 patent. Accordingly, although the "broadcast message distributor module" is subject to § 112(f), this particular claim limitation falls into the second category of disclosed algorithm cases, or the "some disclosed algorithm" cases discussed in *Noah Systems*. The sufficiency of the disclosed algorithms, however, cannot be determined at this stage of proceedings based upon the evidence currently before the Court.

D.   Conclusion Regarding 35 U.S.C. § 112(f)

Defendants successfully rebut the presumption against the invocation of § 112(f) for claims 1 and 11–13 of the '938 patent. The specification of the '938 patent discloses an algorithm for each of the claimed functions. Accordingly, the Court determines the "module" terms, "broadcast admission control module" and "broadcast message distributor module," are means-plus-function terms. Nothing in this Opinion and Order shall be seen to prohibit the parties from raising the sufficiency of the disclosed algorithms on summary judgment. The Court holds only that "broadcast admission control module" and "broadcast message distributor module" are means-plus-function terms pursuant to § 112(f).

V.   Conclusion

The disputed terms of the patents are interpreted by the Court in this Claim Construction Opinion and Order. The Court adopts the construction of the terms as set forth herein. The Court also finds the disputed terms in claims 1 and 11–13 of the '938 patent are means-plus-function terms pursuant to 35 U.S.C. § 112(f). The parties shall follow the schedule set forth in the 17 August 2018 Scheduling Order, ECF 131 for post claim construction proceedings.

IT IS SO ORDERED.

s/ Ryan T. Holte
RYAN T. HOLTE
Judge